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ABSTRACT

This document contains agribusiness and natural resources education courses standards for 43 exploratory courses, practical arts courses, and job preparatory programs offered at the secondary or postsecondary level in Florida. Each program courses standard is composed of two parts. The first part, the curriculum framework, includes four major sections: major concepts/content, laboratory activities, special notes, and intended outcomes. The second part consists of student performance standards, which are listed for each intended outcome. Courses/programs are as follows: introduction to agritechnology; orientation to and exploration of agribusiness and natural resources occupations; applied agribusiness skills; fundamentals of agriscience; practical agricultural skills; agribusiness cooperative education; agricultural business technology, directed study, equipment technology, machinery services, mechanics, production technology, services and supplies, services and supplies technology; agritechnology; animal production technology; animal products processing; animal science; citrus production and technology; crop and dairy production; environmental horticulture; farm production operations; fish and seafood production; floriculture; forest technology; golf course operations; landscape operations and technology; livestock production; natural resources and forest ecology; natural resources technology; natural resources, wildlife conservation, and management; nursery operations; ornamental horticulture technology; park management; pest control technology; small and large animal services; turf equipment management; turfgrass operations; and zoo animal technology. (YLB)

ED358265

VOCATIONAL EDUCATION PROGRAM COURSES STANDARDS

July, 1992

Agribusiness & Natural Resources Education

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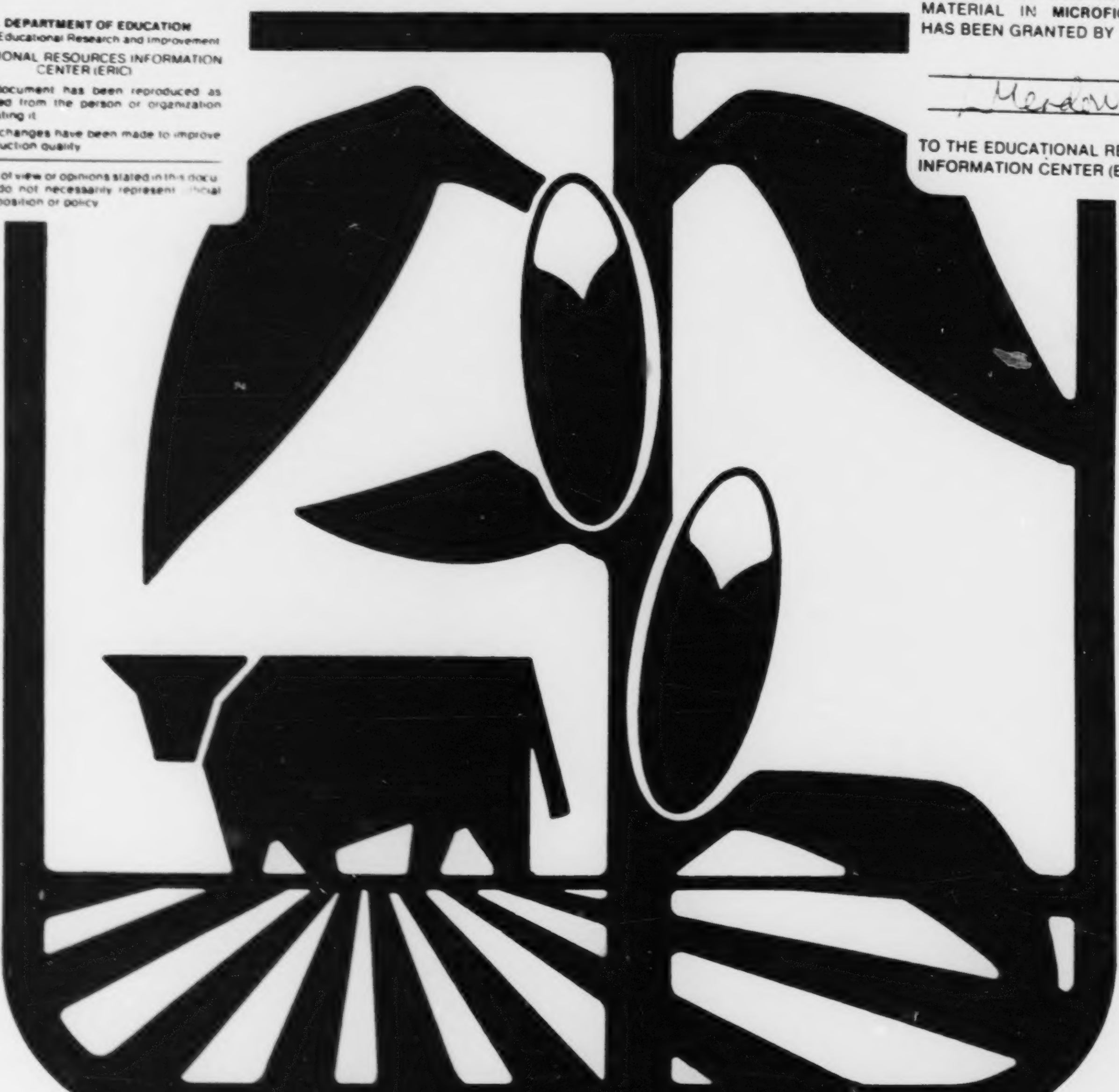

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VOCATIONAL EDUCATION

PROGRAM COURSES STANDARDS

AGRIBUSINESS AND NATURAL RESOURCES EDUCATION

July, 1992

FLORIDA DEPARTMENT OF EDUCATION
Division of Vocational, Adult, and Community Education
Bureau of Vocational Programs and Services
Vocational Programs Section
Tallahassee, Florida 32399

(904) 922-2890

FOREWORD

Section 228.041 Florida Statutes defines vocational education as meaning that instruction not necessarily leading to a baccalaureate degree, either graded or ungraded, listed below:

1. Job preparatory programs designed to provide students with the competencies necessary for effective entry into an occupation;
2. Exploratory courses designed to give students initial exposure to skills and attitudes associated with a broad range of occupations in order to assist them in making informed decisions regarding their future academic and occupational goals;
3. Supplemental programs (courses) designed to enable persons who are or have been employed in a specific occupation to upgrade their competencies in order to re-enter or maintain stability or advance within their occupation;
4. Practical arts courses designed to teach students practical generic skills which, though applicable to some occupations, are not designed to prepare students for entry into a specific occupation;
5. Instruction which integrates the basic academic skills and vocational skills.

This document contains vocational education program courses standards (curriculum frameworks and student performance standards) for exploratory courses, practical arts courses and job preparatory programs offered at the secondary or postsecondary level as a part of Florida's comprehensive vocational education program. Vocational education program courses standards are established pursuant to Section 233.0682, Section 240.355, Section 233.011, and Section 232.2454, Florida Statutes, for school districts and community colleges. State Board of Education Rule 6A-6.0571, Criteria for Qualification for Special Vocational-Technical Education Program Courses, provides the basis for the development and dissemination of this document.

Each program courses standard is composed of two parts: a curriculum framework and student performance standards. The curriculum framework includes four major sections: major concepts/content, laboratory activities, special notes, and intended outcomes. Student performance standards are listed for each intended outcome. For secondary job preparatory programs, courses have been designated with student performance standards listed for each course.

The standards do not prescribe how instruction should be delivered since decisions relative to the delivery of instruction must be made by school districts and community colleges within the context of local conditions. The Division of Vocational, Adult, and Community Education, Florida Department of Education, supports the belief that competency-based vocational education is the most effective means of providing programs and courses that conform to these established standards.

Program and course standards are based upon competencies required for entry, advancement, and upgrading in occupations in the vocational program areas of Agriculture, Business, Diversified, Health Occupations, Home Economics, Technology, Industrial, Marketing, and Public Service Education. Standards of courses designed for handicapped, disadvantaged, and other special needs persons are also provided. These standards are reviewed annually and revised as needed based upon changes in occupations utilizing input from business and industry employers, licensing and credentialing agencies, professional associations, state technical committees, and other representatives of the private sector.

TABLE OF CONTENTS

FOREWORD i

INTRODUCTION v

Introduction to Agritechnology 1
Orientation to Agribusiness and Natural Resources Occupations 5
Exploration of Agribusiness and Natural Resources Occupations 9
Applied Agribusiness Skills 13
Fundamentals of Agriscience 17
Practical Agricultural Skills 21
Agribusiness Cooperative Education - OJT 25
Agricultural Business Technology 29
Agricultural Education Directed Study 35
Agricultural Equipment Technology 39
Agricultural Machinery Services 45
Agricultural Mechanics 59
Agricultural Production Technology 71
Agricultural Services and Supplies 77
Agricultural Services and Supplies Technology 81
Agritechnology 87
Animal Production Technology 99
Animal Products Processing 105
Animal Science 117
Citrus Production 131
Citrus Production Technology 149
Crop Production 155
Dairy Production 173
Enviromental Horticulture 195
Farm Production Operations 209
Fish and Seafood Production 215
Floriculture 221
Forest Technology 241
Golf Course Operations 245
Landscape Operations 251
Landscape Technology 267
Livestock Production 273
Natural Resources and Forest Ecology 295
Natural Resources Technology 311
Natural Resources, Wildlife Conservation and Management 317
Nursery Operations 321
Ornamental Horticulture Technology 341
Park Management 347
Pest Control Technology 353
Small and Large Animal Services 359
Turf Equipment Management 373
Turfgrass Operations 379
Zoo Animal Technology 395

INTRODUCTION

AGRIBUSINESS AND NATURAL RESOURCES EDUCATION

Agribusiness and Natural Resources Education includes various combinations of subject matter and learning experiences in agricultural production, agricultural supplies/services, agricultural mechanics, agricultural products processing, ornamental horticulture, agricultural (natural) resources, forestry, and planned leadership/employability skills. Opportunities for employment in agribusiness and natural resources occupations are found at all levels ranging from the un-skilled to the skilled and including technical, managerial, and professional.

The general purpose is to provide programs needed by persons for initial employment or to upgrade or retrain persons who are or have been employed in agribusiness and natural resources occupations. Stated more specifically, the following are the major objectives of vocational education in agribusiness and Natural Resources Education:

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agribusiness and natural resources occupations.

2. To develop, through exploratory experiences, an understanding of, and an appreciation for, occupations in agribusiness and natural resources.

3. To develop the ability to secure satisfactory placement and advance in an agribusiness occupation through a program of continuing education.

4. To develop the abilities in human relations which are essential to success in agricultural occupations.

5. To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities.

6. Reinforcement of basic skills in English, mathematics, and science appropriate for the job preparatory programs is provided through vocational classroom instruction and applied laboratory procedures or practice.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

COURSE TITLE: Introduction to Agritechnology

CODE NUMBER: Secondary 8100120 Postsecondary ______

Florida CIP 0101.9921EX

SECONDARY SCHOOL CREDITS 0.5 COLLEGE CREDITS _____ POSTSECONDARY ADULT VOCATIONAL CREDITS _____

APPLICABLE LEVEL(S): X 6-9 _____ 9-12 _____ Postsecondary Adult Vocational

_____ Postsecondary Vocational _____ Other 30,31

CERTIFICATION COVERAGE: VOC AGRI @4
AGRI @4 AGRICULTUR 1 2
EXP AG @4

I. MAJOR CONCEPTS/CONTENT: The purpose of this course is to assist students in assessing personal aptitudes, abilities, and interests in agriculture prior to orientation and exploration of careers.

The content includes, but is not limited to, self concepts, career opportunities in agriculture, agricultural literacy, urban and rural lifestyles, plants and animals, environmental responsibilities, science and math, and employability skills.

II. LABORATORY ACTIVITIES: Hands-on laboratory experiences are an integral part of this course including the safe use of laboratory and field tools.

III SPECIAL NOTE:: None

IV. INTENDED OUTCOMES: After successfully completing this course, the student will be able to:

01. Demonstrate a positive self concept for career development.
02. Identify career opportunities in agriculture and agritechnology.
03. Demonstrate technological literacy in agriculture.
04. Demonstrate use of science, mathematics, communications and technology in agriculture.
05. Compare urban and rural lifestyles.
06. Describe the importance of plants and animals in agriculture.
07. Discuss the importance of environmental responsibility.
08. Demonstrate the value of responsibility, good work habits, and planning for career opportunities in agriculture.
09. Use selected techniques to produce finished products from raw agricultural materials.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8100120

PROGRAM TITLE: Introduction to Agritechnology

01.0 DEMONSTRATE A POSITIVE SELF CONCEPT FOR CAREER DEVELOPMENT--The student will be able to:

01.01 Explore interest and aptitudes through standard interest and aptitude surveys.
01.02 Define selected terms relating to career development and positive self concept.
01.03 Describe their own interest, talents, hobbies and self concept.
01.04 Compare interest/aptitude surveys with their own interest and self concept.

02.0 IDENTIFY CAREER OPPORTUNITIES IN AGRICULTURE AND AGRITECHNOLOGY--The student will be able to:

02.01 List the 7 major agricultural/agritechnology career clusters.
02.02 List 2 job titles representative of each major agriculture/agritechnology career cluster.
02.03 Describe the working environment representative of jobs in each of the 7 agriculture/agritechnology career clusters.
02.04 Describe the diversity of career opportunities in agriculture/agritechnology.

03.0 DEMONSTRATE TECHNOLOGICAL LITERACY IN AGRICULTURE--The student will be able to:

03.01 Describe the importance of agriculture on a world scale.
03.02 Use and expand general and specialized vocabulary appropriate to subject.
03.03 Collect and summarize appropriate agricultural articles and reports relating to agritechnology.

04.0 DEMONSTRATE USE OF SCIENCE, MATHEMATICS, COMMUNICATIONS AND TECHNOLOGY IN AGRICULTURE--The student will be able to:

04.01 Describe the relationship between science, technology, and agriculture.
04.02 Relate a current scientific or technological breakthrough affecting agriculture.
04.03 Solve work-related problems using the basic arithmetic operations of additions subtraction, multiplication, and division using whole numbers, fractions, and decimals.
04.04 Make and use measurements in both traditional and metric units.
04.05 Apply basic scientific solutions to appropriate selected problems.
04.06 Describe the role of observation and experimentation in agriculture and agritechnology.
04.07 Prepare written materials using standard sentence structure, verb forms, punctuation, capitalization, and spelling.
04.08 Identify the main and subordinate ideas in oral and written instructional materials.
04.09 Describe computer applications in agritechnology/agriculture.
04.10 Calculate the area of a given parcel of land used as a park or recreation area and calculate the percentage of the total community area (city, county) this parcel represents.

05.0 COMPARE URBAN AND RURAL LIFESTYLES--The student will be able to:

05.01 Describe agriculture influence on the creation of the Constitution of the United States.
05.02 Trace the evolution of the United States from an agrarian society to an industrial/urban society.
05.03 Separate truth from myth regarding rural populations.
05.04 Describe differences between urban and rural environments by the sense of hearing only.

06.0 DESCRIBE THE IMPORTANCE OF PLANTS AND ANIMALS IN AGRICULTURE--The student will be able to:

06.01 Explain the role of plants in the basic food chain.
06.02 Describe the formation of present day energy sources (coal, oil, natural gas) from ancient plant materials.
06.03 Discuss the importance of meat as a source of protein in the daily diet.
06.04 Describe the animal industries responsibilities regarding animal care and welfare.

07.0 DISCUSS THE IMPORTANCE OF ENVIRONMENTAL RESPONSIBILITY--The student will be able to:

07.01 Describe important relationships between plant life and air quality.
07.02 Discuss major threats to water quality and quantity.
07.03 Discuss important relationships among forests, wildlife, and water resources.
07.04 Describe the relationship between wildlife and humans.
07.05 List major factors causing soil erosion.
07.06 Describe responsible pest management and pesticide use.

08.0 DEMONSTRATE THE VALUE OF RESPONSIBILITY, GOOD WORK HABITS AND PLANNING FOR CAREER OPPORTUNITIES IN AGRICULTURE--The student will be able to:

08.01 Identify good attitudes and habits that help people achieve careers.
08.02 Explain how bad attitudes and habits can be changed.
08.03 Describe personality aspects to consider when choosing a career.
08.04 Summarize the basic steps in career planning.
08.05 Assess present state of career plans.
08.06 Develop basic career plan.

09.0 USE SELECTED TECHNIQUES TO PRODUCE FINISHED PRODUCTS FROM RAW AGRICULTURAL MATERIALS--The student will be able to:

09.01 Make paper using a wooden deckle.
09.02 Make dye using local plant materials.
09.03 Demonstrate relative soil particle size using soil separation techniques.
09.04 Make butter from cream.
09.05 Determine effects of various amounts of fertilizers on seed germination and plant growth.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

COURSE TITLE: Orientation to Agribusiness and Natural Resources Occupations

CODE NUMBER: Secondary 8100110 Postsecondary ______

Florida CIP 0101.99100R

SECONDARY SCHOOL CREDITS 0.5 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): X 6-9 ____ 9-12 ____ Postsecondary Adult Vocational

____ Postsecondary Vocational ____ Other 30,31

CERTIFICATION COVERAGE: VOC AGRI @4 AGRI @4 EXP AG @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this course is to acquaint students with career opportunities, job requirements, and tasks performed in a broad range of agribusiness and natural resources occupations.

The content includes, but is not limited to, agribusiness occupations, the kinds of jobs and workers involved, career paths, financial rewards, educational requirements, equipment and terminology, the free enterprise system, and consumer and economic education.

II. LABORATORY ACTIVITIES: Hands-on laboratory experiences are an integral part of this course including the safe use of field hand tools, basic mechanics' hand tools and basic hand carpentry tools.

III SPECIAL NOTE:: None

IV. INTENDED OUTCOMES: After successfully completing this course, the student will be able to:

01. Describe career opportunities and requirements for agricultural production occupations.
02. Describe career opportunities and requirements for agriculture supplies and services occupations.
03. Describe career opportunities and requirements for agricultural mechanics occupations.
04. Describe career opportunities and requirements for agricultural processing and marketing occupations.
05. Describe career opportunities and requirements for ornamental horticultural occupations.
06. Describe career opportunities and requirements for forestry occupations.
07. Describe career opportunities and requirements for natural resources occupations.
08. Demonstrate concepts of free enterprise and consumer economics.
09. Demonstrate leadership, employability, communications and human relations skills.
10. Explain the role of the FFA.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — SECONDARY NUMBER: 8100110

COURSE TITLE: Orientation to Agribusiness and Natural Resources Occupations — POSTSECONDARY NUMBER ______

01.0 DESCRIBE CAREER OPPORTUNITIES AND REQUIREMENTS FOR AGRICULTURAL PRODUCTION OCCUPATIONS--The student will be able to:

01.01 List several occupations in agricultural production.
01.02 Describe products produced by farmers.
01.03 Describe where a person in agricultural production may work and what he/she may do.
01.04 List the benefits and rewards of working in production agriculture.
01.05 Grow and care for a plant from seed.

02.0 DESCRIBE CAREER OPPORTUNITIES AND REQUIREMENTS FOR AGRICULTURAL SUPPLIES AND SERVICES OCCUPATIONS--The student will be able to:

02.01 List occupations and kinds of work associated with agricultural supplies and services.
02.02 Describe the benefits and rewards of working in agricultural supplies and services occupations.
02.03 Demonstrate care used in handling agricultural chemicals and pesticides.
02.04 List three local businesses engaged in agricultural supplies and/or services.

03.0 DESCRIBE CAREER OPPORTUNITIES AND REQUIREMENTS FOR AGRICULTURAL MECHANICS OCCUPATIONS--The student will be able to:

03.01 Describe the types and kinds of equipment used in production agriculture.
03.02 Identify hand and power tools used in the agricultural mechanics shop.
03.03 Describe career opportunities in agricultural mechanics occupation.
03.04 Identify the kinds of work performed by agricultural mechanics.

04.0 DESCRIBE CAREER OPPORTUNITIES AND REQUIREMENTS FOR AGRICULTURAL PROCESSING AND MARKETING OCCUPATIONS--The student will be able to:

04.01 List three local businesses engaged in processing an agricultural product.
04.02 Describe the kinds of work done by agricultural processing and marketing workers.
04.03 List three food and three non-food items processed from the soybean or other crops.
04.04 Prepare and process one agricultural product.

05.0 DESCRIBE CAREER OPPORTUNITIES AND REQUIREMENTS FOR ORNAMENTAL HORTICULTURAL OCCUPATIONS--The student will be able to:

05.01 Describe the occupational opportunities in ornamental horticulture.
05.02 List the kinds of work a beginning horticultural worker may expect.
05.03 Identify foliage and landscape plants by common name.
05.04 Propagate plants from cuttings.
05.05 Care for container grown plants.

06.0 DESCRIBE CAREER OPPORTUNITIES AND REQUIREMENTS FOR FORESTRY OCCUPATIONS--The student will be able to:

06.01 List five careers in forestry occupations.
06.02 List three important reasons for preserving forests and woodlands.
06.03 List the kinds of work a person may expect to do in forestry occupations.
06.04 Identify five trees native to local forests.
06.05 Collect and preserve the leaves of local forest trees.

07.0 DESCRIBE CAREER OPPORTUNITIES AND REQUIREMENTS FOR NATURAL RESOURCES OCCUPATIONS--The student will be able to:

07.01 List five occupations in natural resources.
07.02 Describe five natural resources and explain how they are wasted and conserved.
07.03 Describe effects of urban, industrial and agricultural pollution on the food chain.
07.04 List the kinds of work a person may expect to do in natural resources occupations.

08.0 DEMONSTRATE CONCEPTS OF FREE ENTERPRISE AND CONSUMER ECONOMICS--The student will be able to:

08.01 Define free enterprise.
08.02 Compare the cost of "brand name" items with lesser known brands.
08.03 Compare the quality of a "bargain" item with items of known quality.
08.04 Recognize misleading advertising.
08.05 Define the terms supply, demand, capital, interest and profit.

09.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

09.01 List important personal grooming and hygiene habits.
09.02 Describe the characteristics of a good leader.
09.03 Contribute to a group discussion or activity.
09.04 List the major factors of good human relations.

10.0 EXPLAIN THE ROLE OF THE FUTURE FARMERS OF AMERICA--The student will be able to:

10.01 List five different activities available to FFA members.
10.02 Identify the major duty of each of the six constitutionally elected FFA chapter officers.
10.03 Describe the purpose of the FFA organization.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture
FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992
COURSE TITLE: Exploration of Agribusiness and Natural Resources Occupations
CODE NUMBER: Secondary 8100210 Postsecondary ______
Florida CIP 0101.9920EX

SECONDARY SCHOOL CREDITS 0.5 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): X 6-9 ____ 9-12 ____ Postsecondary Adult Vocational
____ Postsecondary Vocational X Other 30,31

CERTIFICATION COVERAGE:
VOC AGRI @4
AGRI @4
EXP AG @4
AGRICULTUR 1 2

I. **MAJOR CONCEPTS/CONTENT**: The purpose of this course is to give students initial exposure to the skills and attitudes associated with a broad range of occupations relating to careers in agribusiness and natural resources, including job requirements and tasks performed, to assist students in making informed decisions regarding their future academic and occupational goals.

The content includes, but is not limited to instruction that explores the tasks, training, education and physical requirements of a broad range of agribusiness and natural resources occupations.

II. **LABORATORY ACTIVITIES**: Hands-on laboratory experiences are an integral part of this course including the safe use of field hand tools, basic mechanics' hand tools and basic carpentry tools.

III. **SPECIAL NOTE**: None

IV. **INTENDED OUTCOMES**: After successfully completing this course, the student will be able to:

01. Demonstrate knowledge of jobs and tasks performed by workers in agricultural production occupations.
02. Demonstrate knowledge of jobs and tasks performed by workers in agricultural supplies and services occupations.
03. Demonstrate knowledge of jobs and tasks performed by workers in agricultural mechanics occupations.
04. Demonstrate knowledge of jobs and tasks performed by workers in agricultural processing and marketing occupations.
05. Demonstrate knowledge of jobs and tasks performed by workers in ornamental horticultural occupations.
06. Demonstrate knowledge of jobs and tasks performed by workers in forest occupations.
07. Demonstrate knowledge of jobs and tasks performed by workers in natural resources occupations.
08. Demonstrate concepts of free enterprise and consumer economics.
09. Demonstrate knowledge of basic computer literacy.
10. Demonstrate leadership, employability, communications and human relations skills
11. Explain the role of the FFA.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
SECONDARY NUMBER: 8100210

COURSE TITLE: Exploration of Agribusiness and Natural Resources Occupations
POSTSECONDARY NUMBER: ______

01.0 DEMONSTRATE KNOWLEDGE OF JOBS AND TASKS PERFORMED BY WORKERS IN AGRICULTURAL PRODUCTION OCCUPATIONS--The student will be able to:

01.01 Describe five jobs related to the production of food and fiber crops.
01.02 Describe five jobs related to the production of animals.
01.03 List skills, knowledge and training required for agricultural careers.
01.04 Plant and care for a small garden plot.
01.05 Care for an animal.

02.0 DEMONSTRATE KNOWLEDGE OF JOBS AND TASKS PERFORMED BY WORKERS IN AGRICULTURAL SUPPLIES AND SERVICE OCCUPATIONS--The student will be able to:

02.01 Describe five occupations related to agricultural supplies and services.
02.02 Describe the kinds of work, working conditions, rewards and benefits of working in agricultural supplies and services.
02.03 Describe the educational requirements for working in various supplies and service occupations.
02.04 Explain the recommended uses and safety precautions from information on the label of a pesticide container.

03.0 DEMONSTRATE KNOWLEDGE OF JOBS AND TASKS PERFORMED BY WORKERS IN AGRICULTURAL MECHANICS OCCUPATION--The student will be able to:

03.01 Safely use basic mechanics and carpentry hand tools.
03.02 Describe shop and field safety precautions in mechanics occupations.
03.03 Operate a small gasoline engine.
03.04 Describe the conditions, benefits and rewards of working in agricultural mechanics.
03.05 List steps in the career ladder of agricultural mechanics occupations and the training, skills and knowledge required for each step.

04.0 DEMONSTRATE KNOWLEDGE OF JOBS AND TASKS PERFORMED BY WORKERS IN AGRICULTURAL PROCESSING AND MARKETING OCCUPATIONS--The student will be able to:

04.01 List and describe five job opportunities in agricultural products and processing occupations.
04.02 Describe the skills, training and attitudes required in agricultural processing and marketing occupations.
04.03 Make a list of food and non-food products processed from farm products.
04.04 Process an agricultural product.
04.05 Identify the role of agricultural processing and marketing in getting a product from the farm to the consumer.

05.0 DEMONSTRATE KNOWLEDGE OF JOBS AND TASKS PERFORMED BY WORKERS IN ORNAMENTAL HORTICULTURAL OCCUPATIONS--The student will be able to:

05.01 Describe five occupations in ornamental horticulture.
05.02 Root, pot and grow ornamental plants from cuttings and seed.
05.03 Describe the working conditions, rewards and benefits expected in ornamental horticultural occupations.
05.04 Identify five foliage plants, five landscape plants and three ground covers by common name.
05.05 Care for and maintain foliage plants, landscape plants and ground covers.

06.0 DEMONSTRATE KNOWLEDGE OF JOBS AND TASKS PERFORMED BY WORKERS IN FOREST OCCUPATIONS--The student will be able to:

06.01 Describe working conditions, rewards and benefits expected in various forest occupations.
06.02 List the knowledge, skills and training required by various forest occupations.
06.03 Identify five trees native to local forests.
06.04 Describe the importance of forests and forest products.
06.05 Determine the volume of saw timber and pulpwood using a tree scale stick.

07.0 DEMONSTRATE KNOWLEDGE OF JOBS AND TASKS PERFORMED BY WORKERS IN NATURAL RESOURCES OCCUPATIONS

07.01 Describe the importance of natural resources conservation.
07.02 List skills, knowledge and training required for various natural resources occupations.
07.03 Describe working conditions, rewards and benefits of working in natural resources occupations.
07.04 List the major causes of soil erosion and ways to prevent it.
07.05 Describe the importance of Florida's wetlands.

08.0 DEMONSTRATE CONCEPTS OF FREE ENTERPRISE AND CONSUMER ECONOMICS--The student will be able to:

08.01 Determine the per unit cost of a product.
08.02 Compare the per unit cost of the same product packaged in two or more sizes.
08.03 Define the law of supply and demand.
08.04 Compare the free enterprise system in American agriculture with "other" systems.
08.05 Describe how competition benefits the consumer.

09.0 DEMONSTRATE KNOWLEDGE OF BASIC COMPUTER LITERACY--The student will be able to:

09.01 Define basic terms.
09.02 Perform basic computer operations.
09.03 Describe the general use of computers.
09.04 Describe the use of computers in agriculture.

10.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

10.01 Describe importance of using good human relations on the job.
10.02 Demonstrate appropriate grooming and personal hygiene.
10.03 Demonstrate leadership by contributing time and talent to group activities.

11.0 EXPLAIN THE ROLE OF THE FFA--The student will be able to:

11.01 Describe the significance of each part of the FFA emblem.
11.02 List activities and awards available to FFA members.
11.03 Explain the relationship of classroom activities, supervised occupational experience and the FFA.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

COURSE TITLE: Applied Agribusiness Skills

CODE NUMBER: Secondary 8100330 Postsecondary ______

Florida CIP 0101.9932PA

SECONDARY SCHOOL CREDITS 1 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____6-9 ____9-12 ____Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 11-12, 30,31

CERTIFICATION COVERAGE:
VOC AGRI @4
AGRI @4
AGRICULTUR 1 2

I. **MAJOR CONCEPTS/CONTENT**: The purpose of this course is to prepare secondary agribusiness students for entry into specialized postsecondary agricultural education programs requiring a greater mastery of technical/ communications skills.

The content includes, but is not limited to, agribusiness/agricultural problem solving instruction through related communications, computation, agricultural science and technology, entrepreneurship and leadership instruction. The instruction will be provided in part through structured individualized student projects requiring demonstration of the skills and techniques described above.

II. **LABORATORY ACTIVITIES**: Agricultural laboratory activities are an integral part of this course including the shop and land laboratory. Laboratory activities may require the safe use of tools, implements, and equipment as well as computers and scientific instruments.

III. **SPECIAL NOTE**: FFA is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of the instructional program.

A planned and supervised student project will constitute a major portion of the instruction and will require oral and written student presentations.

In order to be successful in this course it is necessary for the student to have received earned credit in an agricultural job-preparatory program prior to enrollment.

IV. **INTENDED OUTCOMES**: After successful completion of this course, the student will be able to:

01. Develop and solve an identified agribusiness/agricultural problem.
02. Prepare and present agribusiness/agricultural information.
03. Demonstrate an understanding of entrepreneurship.
04. Demonstrate leadership, interpersonal and employability skills.

STUDENT PERFORMANCE STANDARDS	EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture	SECONDARY NUMBER: 8100330

COURSE TITLE: Applied Agribusiness Skills	POSTSECONDARY NUMBER:

01.0 DEVELOP AND SOLVE AN IDENTIFIED AGRIBUSINESS/AGRICULTURE PROBLEM--The student will be able to:

01.01 Use the following skills to demonstrate the problem solving method in agribusiness/agriculture.

a. Identify problems.
b. Consider alternative solutions.
c. Formulate and reach decisions logically.
d. Separate fact from opinion.
e. Apply established rules and facts.
f. Demonstrate the scientific method in problem solving.

01.02 Apply the following technical agribusiness/agricultural reading skills to problem solving.

a. Understand the purpose of written agricultural materials.
b. Use agricultural references.
c. Note details and facts.
d. Identify and summarize principal and subsidiary ideas.
e. Verify information and evaluate the worth and objectivity of sources.
f. Interpret quantitative agricultural information in tables, charts and graphs.

01.03 Apply the following computation skills to agribusiness/agricultural problem solving.

a. Apply basic mathematics to an agribusiness/agricultural problem.
b. Calculate distance, weight, area, volume, and time applicable to agriculture.
c. Determine the costs, time, and resources necessary for an agricultural task.
d. Calculate interest.
e. Understand simple probability and statistics.
f. Calculate using information obtained from agricultural charts, graphs, and tables.
g. Use ratio, proportions, percentages, and simple algebraic equations.

01.04 Demonstrate the following agribusiness/agriculturally related technical and scientific principles to solving agricultural problems.

a. Demonstrate the application of chemistry, physics and biology to agriculture.
b. Demonstrate the application of word processing, data-based management, and electronic spreadsheet computer skills to agriculture/agribusiness.
c. Record observations.
d. Keep and maintain financial and other records related to agricultural problems.

02.0 PREPARE AND PRESENT AGRIBUSINESS/AGRICULTURAL INFORMATION--The student will be able to:

02.01 Demonstrate the following skills in agricultural writing.

a. Gather agricultural information.
b. Organize information in a logical coherent manner.
c. Apply rules of correct spelling, punctuation, and capitalization.
d. Attribute agricultural references correctly.
e. Prepare and present a written agricultural report.

02.02 Demonstrate the following skills in oral communication.

a. Identify and summarize correctly principal and subsidiary ideas in an agriculturally related discussion.
b. Follow and give oral directions.
c. Describe the principles of effective oral communication.
d. Obtain, clarify, and verify agricultural information.
e. Participate effectively in agricultural discussion/committee meetings.
f. Prepare and present an oral agricultural report or demonstration.

03.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

03.01 Define entrepreneurship.
03.02 Describe the importance of entrepreneurship to the American economy.
03.03 List the advantages and disadvantages of business ownership.
03.04 Identify the risks involved in ownership of a business.
03.05 Identify the necessary personal characteristics of a successful entrepreneur.
03.06 Identify the business skills needed to operate a small agricultural business efficiently and effectively.

04.0 DEMONSTRATE LEADERSHIP, INTERPERSONAL AND EMPLOYABILITY SKILLS--The student will be able to:

04.01 Demonstrate respect for the opinions, customs, and individual differences of others.
04.02 Offer and accept criticism constructively.
04.03 Set goals and allocate time to achieve them.
04.04 Demonstrate ability to work with or without supervision.
04.05 Demonstrate appropriate dress, grooming and personal hygiene.
04.06 Describe the need for organization, supervision, rules, policies and procedures.
04.07 Demonstrate appropriate procedures for conduction a business meeting.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1992

COURSE TITLE: Fundamentals of Agriscience

CODE NUMBER: Secondary 8100320 — Postsecondary ______

Florida CIP 0101.9931PA

SECONDARY SCHOOL CREDITS 1 — COLLEGE CREDITS _____ — POSTSECONDARY ADULT VOCATIONAL CREDITS _______

APPLICABLE LEVEL(S): _____ 6-9 — X 9-12 — _____ Postsecondary Adult Vocational

______ Postsecondary Vocational — X Other 30.31

CERTIFICATION COVERAGE:
VOC AGRI @4
AGRI @4
AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this course is to provide students with skills and competencies basic to the science of agriculture.

The content includes, but is not limited to, instruction in plant science, animal science, soil science, agricultural mechanics, natural resources and conservation, communication and employability skills.

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this course including the safe use of mechanics' hand tools, field hand tools, oxy-acetylene torches, arc welders, small gasoline engines and tractors.

III. SPECIAL NOTE: FFA is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Practical individualized experiences are recommended for each student enrolled in this course. These planned and supervised activities may be provided through directed laboratory experiences, student projects or placement for experience.

IV. INTENDED OUTCOMES: After successfully completing this course, the student will be able to:

01. Describe the unique relationship between Agriscience and the environment.
02. Initiate a supervised agricultural experience (SAE) program based on identified career opportunities.
03. Demonstrate basic leadership skills in parliamentary procedure, public speaking, and group dynamics.
04. Demonstrate basic skills in natural resources.
05. Demonstrate basic skills in pest management.
06. Demonstrate the fundamental skills in plant science.
07. Demonstrate the aesthetic and environmental use of plants.
08. Demonstrate the basic skills in animal science.
09. Demonstrate the fundamental skills in food science and technology.
10. Demonstrate the basic skills in agricultural business management.
11. Demonstrate the basic mechanical skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture SECONDARY NUMBER: 8100320
COURSE TITLE: Fundamentals of Agriscience POSTSECONDARY NUMBER: ________

01.0 DESCRIBE THE UNIQUE RELATIONSHIPS BETWEEN AGRISCIENCE AND THE ENVIRONMENT--The student will be able to:

01.01 Identify the major sciences that explain the development, existence, and improvement of living things.
01.02 Describe the elements of a healthful environment.
01.03 Describe the efforts made to improve the environment.

02.0 INITIATE A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) PROGRAM BASED ON IDENTIFIED CAREER OPPORTUNITIES--The student will be able to:

02.01 Identify career opportunities in agriscience.
02.02 Identify how careers are classified and determine preparation requirements.
02.03 Plan a supervised agricultural experience program.
02.04 Demonstrate employability skills.

03.0 DEMONSTRATE BASIC LEADERSHIP SKILLS IN PARLIAMENTARY PROCEDURE, PUBLIC SPEAKING, AND GROUP DYNAMICS--The student will be able to:

03.01 Explain the importance of effective leadership in agriscience.
03.02 Prepare and present an oral report.
03.03 Prepare and submit a written report on an agriscience topic.
03.04 Describe the opportunities available through the FFA organization.

04.0 DEMONSTRATE BASIC SKILLS IN NATURAL RESOURCES--The student will be able to:

04.01 Determine the major sources of air pollution and identify procedures for maintaining and improving air quality.
04.02 Determine the relationships between water and soil in our environment and determine practices for conserving these resources.
04.03 Determine the origin and classification of soils, and identify effective procedures for soils and hydroponics management.
04.04 Compare the relationship of forests to our environment and select practices for utilizing forest resources.
04.05 Describe the relationship between wildlife and the environment and identify approved practices in managing wildlife enterprises.
04.06 Identify the biological requirements necessary for the production of aquatic plants and animals.

05.0 DEMONSTRATE BASIC SKILLS IN PEST MANAGEMENT--The student will be able to:

05.01 Identify the major pest groups and the importance of effective pest management programs.
05.02 Classify the nature of chemicals used to control pests.
05.03 Define terms regarding chemical safety.
05.04 Demonstrate safety in the use of chemicals.

06.0 DEMONSTRATE THE FUNDAMENTAL SKILLS IN PLANT SCIENCE--The student will be able to:

06.01 Identify the major parts of plants and state the important functions of each.
06.02 State how plants make food.
06.03 Describe the relationships among air, soil, water, and essential plant nutrients.
06.04 Identify the methods used by plants to reproduce themselves and demonstrate propagation technology.
06.05 Plan, plant and manage a garden.
06.06 Identify the basic principles of fruit and nut production.
06.07 Identify the basic principles of vegetable production.
06.08 Identify the major crops grown for grain, oil, and special purposes.
06.09 Identify the major crops grown for forage and pasture.

07.0 DEMONSTRATE THE AESTHETIC AND ENVIRONMENTAL USES OF PLANTS--The student will be able to:

07.01 Identify and maintain indoor plants.
07.02 State the basic cultural practices for turfgrass production and maintenance.
07.03 Identify and maintain trees and shrubs.

08.0 DEMONSTRATE THE BASIC SKILLS IN ANIMAL SCIENCE--The student will be able to:

08.01 Determine the basic nutritional requirements of animals.
08.02 Identify the factors promoting and maintaining animal health.
08.03 Define terms associated with animal genetics and reproduction, and describe the principles of genetics.
08.04 Identify the types, uses, care, and management of small animals.
08.05 Identify major types and classes of livestock and horses.

09.0 DEMONSTRATE THE FUNDAMENTAL SKILLS IN FOOD SCIENCE AND TECHNOLOGY--The student will be able to:

09.01 Compare procedures for marketing plants and animal products.
09.02 Describe the elements, trends, and career opportunities in the food industry.
09.03 Describe the nutrient requirements for human health.
09.04 Identify the processes used in food science.

10.0 DEMONSTRATE THE BASIC SKILLS IN AGRICULTURAL BUSINESS MANAGEMENT--The student will be able to:

10.01 Define management terms and determine how decisions are made.
10.02 Define and describe entrepreneurship.
10.03 Solve basic arithmetic problems associated with agribusiness management.

11.0 DEMONSTRATE THE BASIC MECHANICAL SKILLS--The student will be able to:

11.01 Identify basic hardware and fasteners.
11.02 State the safety precautions and demonstrate appropriate behavior while working in the shop area.
11.03 Identify the basic principles and use of electricity.
11.04 Identify and correctly use hand and power tools common to the agricultural shop.
11.05 Identify the controls and safely operate a farm tractor.
11.06 Describe the basic operation of internal combustion engines.
11.07 Service and operate small gasoline engines.
11.08 Plan and construct a small woodworking project.
11.09 Solve basic arithmetic problems associated with agriculture mechanics.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

COURSE TITLE: Practical Agricultural Skills

CODE NUMBER: Secondary 8100310 Postsecondary ______

Florida CIP 0101.9930PA

SECONDARY SCHOOL CREDITS 0.5 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____ 6-9 X 9-12 ____ Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 30,31

CERTIFICATION COVERAGE: VOC AGRI @4
AGRI @4
AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this course is to prepare students with the skills and competencies needed to maintain grounds, gardens, pets and equipment around the home.

The content includes, but is not limited to, instruction that prepares students to grow and maintain gardens and ornamental plants; maintain homes, tools and vehicles; identify and grade food products; and keep and file records.

II. LABORATORY ACTIVITIES: Hands-on laboratory and shop experiences are an integral part of this course including the safe use of mechanics' hand tools, garden hand tools, carpentry hand tools and power lawn maintenance equipment.

III. SPECIAL NOTE: None.

IV. INTENDED OUTCOMES: After successful completion of this course, the student will be able to:

01. Grow and maintain gardens, shrubs and grounds.
02. Care for pets and animals.
03. Make home repairs.
04. Maintain and operate household tools and equipment.
05. Maintain vehicles.
06. Identify, grade and prepare food for preservation.
07. Keep and maintain household and family documents.
08. Conduct meetings according to accepted parliamentary law.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8100310

COURSE TITLE: Practical Agricultural Skills POSTSECONDARY NUMBER: ______

01.0 GROW AND MAINTAIN GARDENS, SHRUBS AND GROUNDS--The student will be able to:

01.01 Prepare a seedbed and identify, select and plant vegetable and flower seed.
01.02 Identify fertilizer deficiencies symptoms of plants.
01.03 Apply appropriate rates of fertilizers to gardens, lawns and shrubs.
01.04 Identify common pests of plants and safely apply pesticides.
01.05 Identify and explain how to use 10 ornamental trees and shrubs in the home landscape.
01.06 Plant ornamental shrubs and/or fruit trees.
01.07 Prune ornamental trees and shrubs.
01.08 Prepare a lawn and garden maintenance calendar.
01.09 Maintain a lawn.

02.0 CARE FOR PETS AND ANIMALS--The student will be able to:

02.01 Determine nutritional requirements of animals and pets.
02.02 Groom, care for and train pets.
02.03 Identify owners' responsibility for maintaining pets and animals in respect to the animals health, local laws and neighbors rights.
02.04 Provide appropriate vaccination and preventative medicine for animals and pets.
02.05 Identify and treat diseases and pests of pets and animals according to recommendations by qualified sources.

03.0 MAKE HOME REPAIRS--The student will be able to:

03.01 Survey for and correct identified safety hazards in the home.
03.02 Replace electrical cord, plug, receptical switch, fuse, light bulbs and florescent bulbs.
03.03 Locate electrical service panel in home and list procedures for emergency cut-off and resetting circuit breaker.
03.04 Make simple repairs to faucets, hoses, pipes and plumbing fixtures.
03.05 Make repairs to screens, doors, windows and walls.

04.0 MAINTAIN AND OPERATE HOUSEHOLD TOOLS AND EQUIPMENT--The student will be able to:

04.01 Use safety precautions and devices at all times when operating equipment, tools and machinery.
04.02 Demonstrate the use of a hand saws, portable electric drills, screw drivers, hand wrenches, pliers, measuring tapes, hammers and electrical testing devices.
04.03 Service small gasoline engines and equipment.
04.04 Store fuel and flammables safely.
04.05 Operate home fire extinguisher.
04.06 Spray home for pest using safe recommended pesticides.

05.0 MAINTAIN VEHICLES--The student will be able to:

05.01 Maintain vehicle service and repair records.
05.02 Maintain fuel, coolant, oil and other fluid levels.
05.03 Replace fuses, headlamps and bulbs.
05.04 Change oil and filter.

06.0 IDENTIFY, GRADE AND PREPARE FOOD FOR PRESERVATION--The student will be able to:

06.01 Identify retail cuts of beef and pork.
06.02 Determine quality grade standards for meats and vegetables.
06.03 Identify common varieties of fresh vegetables and produce.
06.04 Describe methods for home preservation of meats and produce.

07.0 KEEP AND MAINTAIN HOUSEHOLD AND FAMILY DOCUMENTS--The student will be able to:

07.01 Identify important elements in a deed, abstract, mortgage, loan, rental agreement, lease and contract.
07.02 Interpret a real property description.
07.03 List household sources of environmental pollutants detrimental to humans, pets, wildlife and natural resources.
07.04 Keep and file household records of expenses, receipts, contracts, warranties, guarantees, certificates, insurance policies and other records.

08.0 CONDUCT MEETINGS ACCORDING TO ACCEPTED PARLIAMENTARY LAW--The student will be able to:

08.01 Plan a meeting agenda.
08.02 Conduct a committee meeting.
08.03 Submit a committee report.
08.04 Move, second, discuss, amend and vote on a motion of business.
08.05 Conduct a nomination and election.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

COURSE TITLE: Agribusiness Cooperative Education - OJT

CODE NUMBER: Secondary 8100410 Postsecondary AEB0949

Florida CIP 0101.9999CP

SECONDARY SCHOOL CREDITS Multiple COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____6-9 ____9-12 X Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:

10-12,30,31 VOC AGRI @4 ANY AGRICULTURE ED
AGRI @4 AGRICULTUR 1 2
ANY AGRICULTURE/TC COOP ED E

30,31 VOC AGRI @4 ANY AGRICULTURE ED
AGRI @2 @4 AGRICULTUR 1 2
ANY AGRICULTURE/TC COOP ED E

I. MAJOR CONCEPTS/CONTENT: The purpose of this course is to provide the on-the-job training component when the cooperative method of instruction is used to prepare students for employment in agricultural occupations. On-the-job experiences are provided as a part of a job preparatory program which will develop occupational competencies required for employment in the occupation chosen by the student as a career choice or to provide experiences that further develop the competencies acquired by the student in an in-school job preparatory program. This method of delivery is not intended for supplemental vocational course instruction and shall not be claimed for supplemental FTE purposes.

II LABORATORY ACTIVITIES: A work station is provided as required to support the on-the-job training activities of the student.

III. SPECIAL NOTE: FFA (secondary) and the National Post-secondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

For the on-the-job training component, the following is required for each student: a training plan, signed by the student, teacher and employer, which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed. The teacher/coordinator must visit each job site a minimum of once during each grading period for the purpose of evaluating the student's progress in attaining the competencies listed in the training plan.

The Cooperative - OJT course may be taken by a student for one or more semesters. A student may earn multiple credits in this course. The specific student performance standards which the student must master to earn credit must be specified in the OJT training plan.

IV. INTENDED OUTCOMES: After successfully completing this course, the student will be able to:

01. Perform designated job skills.
02. Demonstrate work ethics.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
SECONDARY NUMBER: 8100410

COURSE TITLE: Agribusiness Cooperative Education - OJT
POSTESECONDARY NUMBER: AEB0949

01.0 PERFORM DESIGNATED JOB SKILLS--The student will be able to:

- 01.01 Demonstrate job performance skills.
- 01.02 Apply safety procedures on the job.
- 01.03 Maintain appropriate records.
- 01.04 Display a high level of productivity.

02.0 DEMONSTRATE WORK ETHICS--The student will be able to:

- 02.01 Demonstrate ethical practices.
- 02.02 Follow directions.
- 02.03 Interact with employer and co-workers.
- 02.04 Interact with customers and clients.
- 02.05 Display a positive attitude toward the job.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Agricultural Business Technology

CODE NUMBER: Secondary ______ Postsecondary ______

Florida CIP 0101.010100

SECONDARY SCHOOL CREDITS ______ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): ____6-9 ____9-12 ____Postsecondary Adult Vocational

X Postsecondary Vocational ____ Other ______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as supervisors, farm, forest, agriculture (72000524), general farm managers, farm (180.167-018), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to apply the economic and business principles involved in the organization, operation and management of farms and agricultural businesses. Subject matter includes finance, laws, labor, machinery, facilities, and marketing, as well as leadership, communication, employability and human relations skills.

II. LABORATORY ACTIVITIES: Land laboratory activities are an integral part of this program including the safe use of agricultural equipment, facilities, irrigation equipment, chemical applicators and power sprayers.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Obtain and dispose of an agricultural enterprise.
02. Manage and supervise labor.
03. Manage the crop and/or livestock plan.
04. Manage the machinery and equipment programs.
05. Manage facilities and structures.
06. Select sources and methods of financing operation.
07. Manage finances and records.
08. Interpret and apply state and federal rules and regulations to enterprise.
09. Identify sources of agricultural information and assistance.
10. Analyze market information.
11. Analyze contracts, leases and other legal documents.
12. Demonstrate leadership, employability, communication and human relations skills.

STUDENT PERFORMANCE STANDARDS   EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture   SECONDARY NUMBER: ______

PROGRAM TITLE: Agricultural Business Technology   POSTSECONDARY NUMBER: 0101.010100

01.0 OBTAIN AND DISPOSE OF AN AGRICULTURAL ENTERPRISE--The student will be able to:

01.01 Establish and record agribusiness goals.
01.02 Develop plan for type and size of agricultural enterprise.
01.03 Obtain title to agricultural real estate.
01.04 Complete farm rental/lease agreement.
01.05 Purchase building insurance.
01.06 Purchase liability insurance.
01.07 Transfer agribusiness ownership.

02.0 MANAGE AND SUPERVISE LABOR--The student will be able to:

02.01 Develop labor supply plan.
02.02 Hire and dismiss employees.
02.03 Establish and record pay scale and benefits for workers.
02.04 Train workers using demonstration performance method.
02.05 Develop employee work schedules.
02.06 Contract for custom services.
02.07 Prepare payroll records.

03.0 MANAGE THE CROP AND/OR LIVESTOCK PLAN--The student will be able to:

03.01 Prepare land use plan.
03.02 Prepare plan for cropping program.
03.03 Develop budget for changing crop program.
03.04 Prepare inventory of harvested crops.
03.05 Enroll in Agricultural Stabilization Conservation Service program.
03.06 Enroll in and review Soil Conservation Service practices.
03.07 Contract for custom crop production/harvesting services.
03.08 Contract out to perform custom crop services for others.
03.09 Develop crop marketing plan.
03.10 Purchase crop insurance.
03.11 Apply for collection on insured crops.
03.12 Develop plan for purchase and operation of irrigation system.
03.13 Develop fertilization plan.
03.14 Develop pesticide plan.
03.15 Develop plan to meet seed/plant needs.
03.16 Develop livestock program plan.
03.17 Develop plan for raising young stock.
03.18 Plan budget for changing the livestock program.
03.19 Determine plan for livestock feeding program.
03.20 Develop livestock marketing plan.
03.21 Market livestock/livestock products.
03.22 Contract for breeding services.
03.23 Enroll in livestock improvement program.
03.24 Purchase livestock insurance.

04.0 MANAGE THE MACHINERY AND EQUIPMENT PROGRAMS--The student will be able to:

04.01 Develop budgets for changing the machinery and equipment program.
04.02 Prepare inventory of farm machinery and equipment.
04.03 Trade farm machinery and equipment.
04.04 Obtain machinery and equipment by purchase, rent, or lease.
04.05 Prepare inventory of machinery and equipment repair parts, fuel, and lubricants.
04.06 Prepare or contract for fuel, oil, and grease for machinery and equipment.
04.07 Purchase and stock machinery and equipment repair parts.
04.08 Purchase farm shop supplies.
04.09 Purchase machinery and equipment insurance.
04.10 Develop plan for machinery and equipment maintenance program.

05.0 MANAGE FACILITIES AND STRUCTURES--The student will be able to:

05.01 Plan for the expansion of existing facilities or construction of new facilities.
05.02 Develop plan for repairing, remodeling, and improving facilities.
05.03 Acquire buildings by purchase, rental, or lease.
05.04 Purchase building supplies.

06.0 SELECT SOURCES AND METHODS OF FINANCING OPERATION--The student will be able to:

06.01 Analyze major sources of agricultural production credit.
06.02 Analyze and select sources of credit for capital items and real estate.
06.03 Prepare a case using accepted forms for obtaining credit from an agricultural lending institution.

07.0 MANAGE FINANCES AND RECORDS--The student will be able to:

07.01 Calculate and record depreciation.
07.02 Calculate and record net worth of business.
07.03 Calculate and record labor income.
07.04 Calculate and record management income.
07.05 Complete a comparative trend analysis table.
07.06 Complete a profit and loss statement.
07.07 Calculate an operating margin.
07.08 Calculate net cash operating income for one year.
07.09 Calculate and record capital gains and losses.
07.10 Calculate and record monthly/yearly receipts.
07.11 Calculate and record monthly/yearly operating expenses.
07.12 Balance bank statement.
07.13 Develop plan for bestowing the estate.
07.14 Fill out IRS income or loss schedule.
07.15 Fill out IRS capital gains and losses schedule.
07 16 Fill out IRS investment credit schedule.
07.17 Fill out IRS form 1040 schedule.
07.18 Keep crop production records.
07.19 Keep complete livestock records.

08.0 INTERPRET AND APPLY STATE AND FEDERAL RULES AND REGULATIONS TO ENTERPRISE--The student will be able to:

08.01 List agencies responsible for inspecting and regulating operation or product.
08.02 Secure necessary inspections, certificates and registrations.
08.03 Maintain a file of current rules and regulations relative to operation.
08.04 List reasons for the necessity of inspections, certification and regulations.

09.0 IDENTIFY SOURCES OF AGRICULTURAL INFORMATION AND ASSISTANCE--The student will be able to:

09.01 Keep and maintain a file of current technical information from universities, governmental agencies and commercial companies.
09.02 Maintain a reference file for periodicals and other publications.
09.03 Attend seminars and workshops to update skills and knowledge.
09.04 Use computer networking for up-to-date agricultural information.
09.05 Identify associations and societies associated with occupation or profession.

10.0 ANALYZE MARKET INFORMATION--The student will be able to:

10.01 Secure and interpret market information.
10.02 Select marketing channels for greatest profit.
10.03 Analyze market trends.
10.04 Market products.

11.0 ANALYZE CONTRACTS, LEASES AND OTHER LEGAL DOCUMENTS--The student will be able to:

11.01 Analyze and interpret land use maps.
11.02 Interpret a real estate legal description.
11.03 Identify major elements in lease agreements.
11.04 Identify major elements in contracts.
11.05 Secure legal services.

12.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION AND HUMAN RELATIONS SKILLS--The student will be able to:

12.01 Conduct a job search.
12.02 Secure information about a job.
12.03 Identify documents that may be required when applying for a job.
12.04 Complete a job application form correctly.
12.05 Demonstrate competence in job interview techniques.
12.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
12.07 Identify acceptable work habits.
12.08 Demonstrate knowledge of how to make job changes appropriately.
12.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

COURSE TITLE: Agricultural Education Directed Study

CODE NUMBER: Secondary 8100100 Postsecondary ____________

Florida CIP 0101.999901

SECONDARY SCHOOL CREDITS Multiple COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): ____ 6-9 ____ 9-12 ____ Postsecondary Adult Vocational

____ Postsecondary Vocational ____ Other 11-12,30,31

CERTIFICATION COVERAGE: ANY AGRICULTURE EDUC

I. MAJOR CONCEPTS/CONTENT: The purpose of this course is to provide students with additional competencies in an Agricultural Education program that will enhance their opportunities for employment in the occupation chosen by the student.

The content is prescribed by the instructor based upon the individual student's assessed needs for directed study.

II. LABORATORY ACTIVITIES: A work station is provided as required to support the training activities of the student.

III. SPECIAL NOTE: FFA is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

This course may be taken only by a student who has completed, or is currently completing, all of the courses prescribed in the Course Code Directory for a specific secondary job preparatory program and needs additional study in this program. A student may earn multiple credits in this course.

The specific student performance standards which the student must master to earn credit must be outlined in an instructional plan developed by the instructor.

The student enrolled in this course must be reported using the Course Code Directory program number for the specific job preparatory program in which the student is continuing.

IV. INTENDED OUTCOMES: After successfully completing this course, the student will be able to:

01. Perform designated job skills.
02. Demonstrate a knowledge of the basic skills in mathematics and language appropriate for the chosen occupation.

CF/11/25/91

STUDENT PERFORMANCE STANDARDS
PROGRAM AREA: Agriculture
COURSE TITLE: Agricultural Education Directed Study

EFFECTIVE DATE: July, 1992
SECONDARY NUMBER: 8100100
POSTSECONDARY NUMBER: _______

01.0 PERFORM DESIGNATED JOB SKILLS--The student will be able to:

- 01.01 Demonstrate job performance skills.
- 01.02 Follow prescribed safety procedures.
- 01.03 Display increasingly higher levels of productivity.

02.0 DEMONSTRATE A KNOWLEDGE OF THE BASIC SKILLS IN MATHEMATICS AND LANGUAGE APPROPRIATE FOR THE CHOSEN OCCUPATION--The student will be able to:

- 02.01 Use addition, subtraction, multiplication, and division to solve problems encountered in the chosen occupation.
- 02.02 Read, understand, and find information relative to the chosen occupation.
- 02.03 Write logical and grammatically correct statements and reports with correct spelling appropriate for the chosen occupation.

PS/12/11/91

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Agricultural Equipment Technology

CODE NUMBER: Secondary ________ Postsecondary ________

Florida CIP 0101.020100

SECONDARY SCHOOL CREDITS _____ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS _____

APPLICABLE LEVEL(S): _____6-9 _____9-12 _____Postsecondary Adult Vocational

X Postsecondary Vocational _____ Other ________

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farm equipment operators (79021529), farm equipment mechanics supervisors, supervisors, farm equipment maintenance, inspector testers; agricultural engineering technicians; sales engineers, agricultural equipment, or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to select, operate, maintain, service, sell and use agricultural power units, machinery, equipment, structures and utilities. Instruction also includes the planning and selection of materials, construction of agricultural facilities and the mechanical practices associated with irrigation, drainage, run-off, water conservation and erosion control.

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including the safe use of mechanics' tools and equipment, tractors and field equipment, arc welders, oxy-acetylene torches, and irrigation equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Operate and maintain power tools and equipment.
02. Manage an agricultural shop.
03. Arc and oxy-acetylene weld.
04. Calibrate and adjust tillage equipment.
05. Schedule the maintenance for gasoline and diesel power units.
06. Calibrate power spraying equipment.
07. Keep maintenance records.
08. Determine the equipment requirements for an operation.
09. Practice safety.
10. Maintain hydraulic systems on equipment.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to: Continued:

11. Maintain electrical systems on equipment.
12. Maintain fuel and injection systems on equipment.
13. Analyze technical information and apply to management practices.
14. Demonstrate leadership, communication, employability, human and public relations skills.

STUDENT PERFORMANCE STANDARDS
PROGRAM AREA: Agriculture
PROGRAM TITLE: Agricultural Equipment Technology

EFFECTIVE DATE: July, 1992
SECONDARY NUMBER: ______________
POSTSECONDARY NUMBER: 0101.020100

01.0 OPERATE AND MAINTAIN POWER TOOLS AND EQUIPMENT--The student will be able to:

01.01 Select and maintain power tools and equipment.
01.02 Demonstrate safe use of power tools and equipment.
01.03 Develop schedule for the replacement of tools and equipment.
01.04 Train employees to use power tools and equipment safely.
01.05 Trouble-shoot tool malfunctions.

02.0 MANAGE AN AGRICULTURAL SHOP--The student will be able to:

02.01 Maintain employee records.
02.02 Order and maintain parts and supplies.
02.03 Schedule and assign jobs and tasks.
02.04 Design shop layout for efficiency and safety.
02.05 Supervise employees.
02.06 Analyze efficiency of operation.
02.07 Prepare reports.
02.08 Maintain orderly and safe shop.
02.09 Estimate time and cost to complete a job.
02.10 Inspect and test work for quality.

03.0 ARC AND OXY-ACETYLENE WELD--The student will be able to:

03.01 Determine kind and type of supplies and equipment required for job.
03.02 Interpret drawings and blueprints.
03.03 Fabricate projects from drawings and blueprints.
03.04 Maintain welding equipment in safe operating condition.
03.05 Estimate cost of project.
03.06 Inspect job for quality.
03.07 Cut with oxy-acetylene torch.
03.08 Oxy-acetylene weld.
03.09 Arc weld in horizontal, vertical and overhead position.
03.10 Perform a butt, fillet tee and lap weld.
03.11 Demonstrate use of safety shields, clothing and equipment.

04.0 CALIBRATE AND ADJUST TILLAGE EQUIPMENT--The student will be able to:

04.01 Determine adjustment and calibration needed for specific operation.
04.02 Maintain service manuals and instructions for each item of equipment.
04.03 Maintain an inventory of frequently used replacement parts.
04.04 Adjust tension of components to recommended specifications.
04.05 Repair tillage equipment.
04.06 Operate tillage equipment.

05.0 SCHEDULE THE MAINTENANCE FOR GASOLINE AND DIESEL POWER UNITS--The student will be able to:

05.01 Maintain a schedule for servicing the oil, lubrication, hydraulic coolant, and fuel systems.
05.02 Perform daily inspection of equipment for wear, safety and operational conditions.
05.03 Assemble and test new equipment.
05.04 Replace or rebuild external components of engine.
05.05 Estimate time and cost to repair equipment.
05.06 Maintain service manuals and operating instructions for all equipment.
05.07 Supervise the maintenance of power units.
05.08 Trouble-shoot malfunctions.

06.0 CALIBRATE POWER SPRAYING EQUIPMENT--The student will be able to:

06.01 Adjust and calibrate power spraying equipment.
06.02 Maintain a schedule for servicing equipment.
06.03 Replace or exchange parts for specific operations and chemicals.
06.04 Replace or rebuild pumps.
06.05 Operate power spraying equipment.
06.06 Supervise and train workers in the safe use of equipment.
06.07 Trouble-shoot malfunctions.

07.0 KEEP MAINTENANCE RECORDS--The student will be able to:

07.01 Maintain accurate service and maintenance records for each item of equipment.
07.02 Analyze records to determine efficiency and cost of operating equipment.
07.03 Prepare maintenance and cost reports.
07.04 Keep inventory of maintenance parts.

08.0 DETERMINE THE EQUIPMENT REQUIREMENTS FOR AN OPERATION--The student will be able to:

08.01 Determine equipment replacement schedule.
08.02 Identify equipment to sell or eliminate from inventory.
08.03 Project need for new or updated equipment.
08.04 Estimate cost to purchase, operate and maintain new equipment.
08.05 Compare cost, efficiency and maintenance requirements of various models and makes of equipment.
08.06 Select equipment based on analysis of performance.
08.07 Prepare bid specification for purchase of equipment and services.
08.08 Prepare recommendations for service and equipment purchases.

09.0 PRACTICE SAFETY--The student will be able to:

09.01 Identify equipment safety hazards.
09.02 Maintain employee safety records.
09.03 Determine measures to improve safety.
09.04 Maintain a file of reported safety hazards relative to equipment or equipment use.
09.05 Maintain and use all safety shields, covers and devices.
09.06 Maintain a continuous safety campaign with workers and employees.
09.07 Check out employees on new or unfamiliar equipment prior to use.

10.0 MAINTAIN HYDRAULIC SYSTEMS ON EQUIPMENT--The student will be able to:

10.01 Service hydraulic systems.
10.02 Remove and replace seals in hydraulic system.
10.03 Test hydraulic systems.
10.04 Trouble-shoot malfunctions of system.

11.0 MAINTAIN ELECTRICAL SYSTEMS ON EQUIPMENT--The student will be able to:

11.01 Service battery and cables.
11.02 Set ignition timing.
11.03 Clean, gap test/or replace spark plugs.
11.04 Replace points and condenser.
11.05 Test D.C. electrical circuits and motors.
11.06 Replace lamp and fuses.
11.07 Test electronic ignition system.
11.08 Trouble-shoot electrical and ignition systems.

12.0 MAINTAIN FUEL AND INJECTION SYSTEMS ON EQUIPMENT--The student will be able to:

12.01 Adjust carburetor for load and idle operation.
12.02 Repair or replace carburetor.
12.03 Maintain a clean supply of gasoline and diesel fuel.
12.04 Replace fuel filters.
12.05 Adjust governor on equipment.
12.06 Trouble-shoot diesel injection fuel system problems.
12.07 Trouble-shoot carburetor fuel system problems.

13.0 ANALYZE TECHNICAL INFORMATION AND APPLY TO MANAGEMENT PRACTICES--The student will be able to:

13.01 Keep and maintain a file of current technical information from universities, governmental agencies and commercial companies.
13.02 Maintain a reference file for periodicals and other publications.
13.03 Attend seminars and workshops to update skills and knowledge.

14.0 DEMONSTRATE LEADERSHIP, COMMUNICATIONS, EMPLOYABILITY, HUMAN AND PUBLIC RELATIONS SKILLS--The student will be able to:

14.01 Conduct a job search.
14.02 Secure information about a job.
14.03 Identify documents that may be required when applying for a job.
14.04 Complete a job application form correctly.
14.05 Demonstrate competence in job interview techniques.
14.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
14.07 Identify acceptable work habits.
14.08 Demonstrate knowledge of how to make job changes appropriately.
14.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK   PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION   EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Agricultural Machinery Services

CODE NUMBER: Secondary 8103000   Postsecondary MAG0205

Florida CIP 0101.020401

SECONDARY SCHOOL CREDITS 6   COLLEGE CREDITS ____   POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____ 6-9 ____ 9-12 X Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12,30,31

	10-12,30,31	VOC AGRI @4 AGRI @4	AGRI MECH #7 AGRICULTUR 1 2
CERTIFICATION COVERAGE:			
	30,31	VOC AGRI @4 AGRI @2 @4	AGRI MECH @7 G AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farm equipment mechanics (85321640), tractor mechanics (620.281-058), farm equipment mechanics II (624.381-014), farm machine operators (409.683-010), tractor-mechanic helpers (620.684-030), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to select, operate, repair, service and maintain a variety of agricultural power units and agricultural machinery and equipment. Subject matter includes gas, diesel and electric units, welding, hydraulic units, lubrication, safety, as well as record keeping and leadership communication, employability and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8103010	Agricultural Machinery Services 1
8103020	Agricultural Machinery Services 2
8103030	Agricultural Machinery Services 3
8103040	Agricultural Machinery Services 4
8103050	Agricultural Machinery Services 5
8103060	Agricultural Machinery Services 6

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, tractors and field equipment, mechanics' shop equipment, oxy-acetylene torches, arc welders, shop test equipment and hydraulic equipment.

III. SPECIAL NOTE: FFA (secondary) and the National Postsecondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

III. SPECIAL NOTE: Continued

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks relevant to the occupation the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Practice personal equipment operation and general shop safety.
02. Maintain and use hand and power tools.
03. Use service and repair manuals.
04. Keep records.
05. Weld, braze and cut as appropriate with arc, oxy-acetylene, mig and other equipment.
06. Perform general shop tasks.
07. Operate, adjust and maintain major items of agricultural machinery and equipment.
08. Describe principles of internal combustion engines operation.
09. Diagnose, service and repair internal combustion engines.
10. Diagnose, service and repair the electrical system.
11. Diagnose, service and repair the fuel delivery system.
12. Diagnose, service and repair the lubrication system.
13. Diagnose, service and repair the cooling system.
14. Diagnose, service and repair mechanical and hydraulic transmission systems.
15. Diagnose, service and repair and maintain the hydraulic system.
16. Diagnose, service and repair and maintain the brake system.
17. Diagnose, service and repair intake and exhaust system.
18. Diagnose, service and repair final drive systems.
19. Apply business management skills and identify appropriate legal documents.
20. Demonstrate leadership, communication, employability and human relations skills.
21. Demonstrate proficiency in applying basic mathematics, science and communication skills in agricultural problem solving.

STUDENT PERFORMANCE STANDARDS
PROGRAM AREA: Agriculture
PROGRAM TITLE: Agricultural Machinery Services

EFFECTIVE DATE: July, 1992
SECONDARY NUMBER: 8103000
POSTSECONDARY NUMBER: MAG0205

01.0 PRACTICE PERSONAL, EQUIPMENT OPERATION AND GENERAL SHOP SAFETY (Levels 1,2,3,4,5,6)--(The student will be able to:

01.01 Wear personal safety equipment and clothing for the task to be performed.
01.02 Study and understand each task before it is attempted.
01.03 Keep the work area free of clutter, flammable materials and other potential hazards.
01.04 Operate machinery and equipment according to recommendations in the Operator's Manual.
01.05 Follow all recommended safety precautions.

02.0 MAINTAIN AND USE HAND AND POWER TOOLS--The student will be able to:

02.01 Identify, select and safely use hand tools for maintaining and repairing farm machinery equipment.
02.02 Maintain tools in a efficient and safe working condition.
02.03 Identify, select and safely use basic shop power tools.

03.0 USE SERVICE AND REPAIR MANUALS (Levels 1,2,3)--The student will be able to:

03.01 Read and follow directions given in service and/or repair manuals.
03.02 Locate in service/repair manuals information needed to complete specific tasks.
03.03 Complete the assigned maintenance or service task according to the manufacturers recommendations.

04.0 KEEP RECORDS--The student will be able to:

04.01 Demonstrate simple record keeping procedures showing hours worked wages, deductions, costs, etc.
04.02 Keep records on each job or project assignment in the shop, at home or on a job.

05.0 WELD, BRAZE, CUT, AS APPROPRIATE WITH ARC, OXY-ACETYLENE AND MIG WELDERS AND OTHER EQUIPMENT--The student will be able to:

05.01 Setup, adjust, operate and maintain oxy-acetylene cutting and welding equipment.
05.02 Setup, adjust, operate and maintain arc welding equipment.
05.03 Setup, adjust, operate and maintain MIG welding equipment.
05.04 Select recommended operational procedures for welding equipment and supplies.
05.05 Demonstrate all recommended safety precautions.
05.06 Demonstrate the different welding positions.
05.07 Weld different metals.
05.08 Cut and pierce metals.
05.09 Braze metals.
05.10 Apply hard surface alloys.
05.11 Select recommended storage procedures for welding equipment and supplies.

06.0 PERFORM GENERAL SHOP TASKS--The student will be able to:

06.01 Identify, service and replace seals and bearings.
06.02 Check tires for pressure, wear and defects.
06.03 Demount, repair, replace large and small tubes and tires.
06.04 Complete work orders, service invoices and requisitions.
06.05 Prepare written cost estimate of repair work and warranty claims.
06.06 Inspect new parts for shipping damage.
06.07 Clean machinery and equipment with steam cleaner.
06.08 Paint tractors, machinery and equipment.
06.09 Use the dynamometer.

07.0 OPERATE, ADJUST AND MAINTAIN MAJOR AGRICULTURAL MACHINERY AND EQUIPMENT--The student will be able to:

07.01 Read and follow operational instructions and safety precautions listed in the operators manual, text, and as provided by the instructor.
07.02 Operate and adjust items of agricultural machinery and equipment used in the local area.
  a. Agricultural wheel type tractors
  b. Land preparation equipment
  c. Planting equipment
  d. Tillage equipment
  e. Weed, insect and pest control equipment
  f. Harvesting equipment
  g. General usage farm equipment
  h. Irrigation equipment
  i. Fertilization equipment

07.03 Remove, clean, test, repair, replace parts of system components unique to machinery and equipment used for meeting standard number 07.02.
07.04 Service and adjust components and systems on machinery and equipment used for meeting standard 07.02.
07.05 Operate, adjust and service electric motors and small gasoline engines.

08.0 DESCRIBE PRINCIPLES OF INTERNAL COMBUSTION ENGINES OPERATION--The student will be able to:

08.01 Classify types of engines.
08.02 Describe the principles involved in the operation of internal combustion engines.

09.0 DIAGNOSE, SERVICE AND REPAIR INTERNAL COMBUSTION ENGINES (Levels 1,2,3,4)--The student will be able to:

09.01 Troubleshoot components of the engine using recommended testing equipment.
09.02 Remove, clean, test, repair and replace components of the basic engine.
09.03 Service and adjust all parts of the engine for proper operation.

10.0 DIAGNOSE, SERVICE AND REPAIR THE ELECTRICAL SYSTEM--The student will be able to:

10.01 Troubleshoot the electrical system, using recommended testing equipment.
10.02 Replace and repair components of the electrical system.
10.03 Adjust or set all parts of system for proper operation.

11.0 DIAGNOSE, SERVICE AND REPAIR THE FUEL DELIVERY SYSTEM--The student will be able to:

11.01 Clean, rebuild, replace carburetors.
11.02 Bleed diesel fuel system.
11.03 Check and adjust diesel fuel injection pump.
11.04 Replace parts of fuel system components.
11.05 Replace components of the fuel system.
11.06 Service and adjust parts of the fuel system for proper operation.

12.0 DIAGNOSE, SERVICE AND REPAIR THE LUBRICATION SYSTEM--The student will be able to:

12.01 Change oil filters.
12.02 Check and change oils and other lubricants in engines.
12.03 Service and replace parts of the system components.
12.04 Replace components of the system.
12.05 Service and adjust all parts of the system for proper operation.

13.0 DIAGNOSE, SERVICE, REPAIR AND MAINTAIN THE COOLING SYSTEM--The student will be able to:

13.01 Test coolant.
13.02 Flush and clean system.
13.03 Test parts of the system.
13.04 Rebuild water pump.
13.05 Replace all parts of system.
13.06 Adjust all system parts for proper operation.

14.0 DIAGNOSE, SERVICE AND REPAIR THE MECHANICAL AND HYDRAULIC TRANSMISSION SYSTEM--The student will be able to:

14.01 Troubleshoot clutch components using recommended testing equipment.
14.02 Remove, clean, test, repair, replace parts of system components.
14.03 Remove, adjust, replace clutch components.
14.04 Service and adjust parts of different kinds of clutches for proper operation.

15.0 DIAGNOSE, SERVICE, REPAIR AND MAINTAIN THE HYDRAULIC SYSTEM--The student will be able to:

15.01 Change filters, drain, flush and refill hydraulic system.
15.02 Troubleshoot hydraulic system components, using recommended testing equipment.
15.03 Remove, clean, test, repair, replace parts of system components.
15.04 Remove, adjust, replace system components.
15.05 Service and adjust components and system for proper operation.

16.0 DIAGNOSE, SERVICE, REPAIR AND MAINTAIN THE BRAKE SYSTEM--the student will be able to:

16.01 Drain, refill, bleed and adjust the brake system.
16.02 Test brake system components using recommended testing equipment.
16.03 Remove, clean, test, repair, replace parts of system components.
16.04 Remove, adjust, replace system components.
16.05 Service and adjust components and system for proper operation.

17.0 DIAGNOSE, SERVICE AND REPAIR INTAKE AND EXHAUST SYSTEM--The student will be able to:

17.01 Check and test intake and exhaust system parts using recommended methods and testing equipment.
17.02 Remove, clean, test, repair, replace parts of system components.
17.03 Remove, adjust, replace components of intake and exhaust system.
17.04 Service and adjust components and system for proper operation.

18.0 DIAGNOSE, SERVICE AND REPAIR FINAL DRIVE SYSTEM--The student will be able to:

18.01 Check and test final drive system parts using recommended methods and testing equipment.
18.02 Remove, clean, test, repair replace parts of final drive system.
18.03 Remove, adjust, replace components of final drive system.
18.04 Service and adjust components and system for proper operation.

19.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

19.01 Complete basic business records.
19.02 Demonstrate use of banking procedures.
19.03 Identify personal/business liability and the use of liability insurance.
19.04 Identify applicable insurance requirements.
19.05 Identify applicable personal/business tax liability.
19.06 Complete basic personal/business tax liability forms.
19.07 Interpret enterprise budgets and amortization tables.
19.08 Identify characteristics of legal instruments (i.e., contracts, deeds, and leases).
19.09 Complete supervised agricultural experiences (SAE) records.

20.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS (Levels 1,2)--The student will be able to:

20.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
20.02 Identify acceptable work habits (ethics) and desired personal characteristics.
20.03 Demonstrate acceptable employee-hygiene habits.
20.04 Secure information about a job.
20.05 Complete a job application.
20.06 Demonstrate competence in job-interview techniques.
20.07 Demonstrate proper office procedures.
20.08 Demonstrate appropriate response to criticism form employer, supervisor, or other persons in the workplace.
20.09 Demonstrate how to appropriately make a career change.
20.10 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.01 Solve time, distance, area, and volume problems.
21.02 Solve ratio, proportion, and percentage problems.
21.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
21.04 Identify basic concepts of physics in agricultural applications.
21.05 Identify basic concepts of chemistry in agricultural applications.
21.06 Identify basic biological concepts in agricultural applications.
21.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references. (Levels 1,2,3,4)
21.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure. (Levels 1,2,3,4)
21.09 Demonstrate the scientific method in agricultural problem solving. (Levels 1,2,3,4)

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Agricultural Machinery Services	PROGRAM NUMBER:	8103000
COURSE TITLE:	Agricultural Machinery Services 1	COURSE NUMBER:	8103010

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of safety procedures, hand and power tools, service and repair manuals, record keeping, welding, basic business management, employability and problem solving skills.

01.0 PRACTICE PERSONAL, EQUIPMENT OPERATION AND GENERAL SHOP SAFETY (Levels 1)--(The student will be able to:

01.01 Wear personal safety equipment and clothing for the task to be performed.
01.02 Study and understand each task before it is attempted.
01.03 Keep the work area free of clutter, flammable materials and other potential hazards.
01.04 Operate machinery and equipment according to recommendations in the Operator's Manual.
01.05 Follow all recommended safety precautions.

02.0 MAINTAIN AND USE HAND AND POWER TOOLS--The student will be able to:

02.01 Identify, select and safely use hand tools for maintaining and repairing farm machinery equipment.
02.02 Maintain tools in a efficient and safe working condition.
02.03 Identify, select and safely use basic shop power tools.

03.0 USE SERVICE AND REPAIR MANUALS (Level 1)--The student will be able to:

03.01 Read and follow directions given in service and/or repair manuals.
03.02 Locate in service/repair manuals information needed to complete specific tasks.
03.03 Complete the assigned maintenance or service task according to the manufacturers recommendations.

04.0 KEEP RECORDS--The student will be able to:

04.01 Demonstrate simple record keeping procedures showing hours worked wages, deductions, costs, etc.
04.02 Keep records on each job or project assignment in the shop, at home or on a job.

05.0 WELD, BRAZE, CUT, AS APPROPRIATE WITH ARC, OXY-ACETYLENE AND MIG WELDERS AND OTHER EQUIPMENT--The student will be able to:

05.01 Setup, adjust, operate and maintain oxy-acetylene cutting and welding equipment.
05.02 Setup, adjust, operate and maintain arc welding equipment.
05.03 Setup, adjust, operate and maintain MIG welding equipment.
05.04 Select recommended operational procedures for welding equipment and supplies.
05.05 Demonstrate all recommended safety precautions.
05.06 Demonstrate the different welding positions.
05.07 Weld different metals.
05.08 Cut and pierce metals.
05.09 Braze metals.
05.10 Apply hard surface alloys.
05.11 Select recommended storage procedures for welding equipment and supplies.

19.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

19.01 Complete basic business records.
19.02 Demonstrate use of banking procedures.
19.09 Complete supervised agricultural experience (SAE) records.

20.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS (Level 1)--The student will be able to:

20.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
20.02 Identify acceptable work habits (ethics) and desired personal characteristics.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.01 Solve time, distance, area, and volume problems.

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STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Agricultural Machinery Services
PROGRAM NUMBER: 8103000

COURSE TITLE: Agricultural Machinery Services 2
COURSE NUMBER: 8103020

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of safety, general shop tasks, agricultural machinery and equipment operation, adjustment and maintenance, business management, employability and problem solving skills.

01.0 PRACTICE PERSONAL, EQUIPMENT OPERATION AND GENERAL SHOP SAFETY (Levels 2)--(The student will be able to:

01.01 Wear personal safety equipment and clothing for the task to be performed.
01.02 Study and understand each task before it is attempted.
01.03 Keep the work area free of clutter, flammable materials and other potential hazards.
01.04 Operate machinery and equipment according to recommendations in the Operator's Manual.
01.05 Follow all recommended safety precautions.

03.0 USE SERVICE AND REPAIR MANUALS (Level 2)--The student will be able to:

03.01 Read and follow directions given in service and/or repair manuals.
03.02 Locate in service/repair manuals information needed to complete specific tasks.
03.03 Complete the assigned maintenance or service task according to the manufacturers recommendations.

06.0 PERFORM GENERAL SHOP TASKS--The student will be able to:

06.01 Identify, service and replace seals and bearings.
06.02 Check tires for pressure, wear and defects.
06.03 Demount, repair, replace large and small tubes and tires.
06.04 Complete work orders, service invoices and requisitions.
06.05 Prepare written cost estimate of repair work and warranty claims.
06.06 Inspect new parts for shipping damage.
06.07 Clean machinery and equipment with steam cleaner.
06.08 Paint tractors, machinery and equipment.
06.09 Use the dynamometer.

07.0 OPERATE, ADJUST AND MAINTAIN MAJOR AGRICULTURAL MACHINERY AND EQUIPMENT--The student will be able to:

07.01 Read and follow operational instructions and safety precautions listed in the operators manual, text, and as provided by the instructor.
07.02 Operate and adjust items of agricultural machinery and equipment used in the local area.
  a. Agricultural wheel type tractors
  b. Land preparation equipment
  c. Planting equipment
  d. Tillage equipment
  e. Weed, insect and pest control equipment
  f. Harvesting equipment
  g. General usage farm equipment
  h. Irrigation equipment
  i. Fertilization equipment

19.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

19.01 Complete basic business records.
19.03 Identify personal/business liability and the use of liability insurance.
19.09 Complete supervised agricultural experience (SAE) records.

20.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS (Level 1)--The student will be able to:

20.03 Demonstrate acceptable employee-hygiene habits.
20.04 Secure information about a job.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.02 Solve ratio, proportion, and percentage problems.
21.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.

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STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Agricultural Machinery Services
PROGRAM NUMBER: 8103000

COURSE TITLE: Agricultural Machinery Services 3
COURSE NUMBER: 8103030

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of safety, adjustment and maintenance, including electric motors and small gasoline engines, principles of internal combustion engines, business management, employability and problem solving skills.

01.0 PRACTICE PERSONAL, EQUIPMENT OPERATION AND GENERAL SHOP SAFETY (Level 3)--(The student will be able to:

01.01 Wear personal safety equipment and clothing for the task to be performed.
01.02 Study and understand each task before it is attempted.
01.03 Keep the work area free of clutter, flammable materials and other potential hazards.
01.04 Operate machinery and equipment according to recommendations in the Operator's Manual.
01.05 Follow all recommended safety precautions.

03.0 USE SERVICE AND REPAIR MANUALS (Level 3)--The student will be able to:

03.01 Read and follow directions given in service and/or repair manuals.
03.02 Locate in service/repair manuals information needed to complete specific tasks.
03.03 Complete the assigned maintenance or service task according to the manufacturers recommendations.

07.0 OPERATE, ADJUST AND MAINTAIN MAJOR AGRICULTURAL MACHINERY AND EQUIPMENT--The student will be able to:

07.03 Remove, clean, test, repair, replace parts of system components unique to machinery and equipment used for meeting standard number 07.02.
07.04 Service and adjust components and systems on machinery and equipment used for meeting standard 07.02.
07.05 Operate, adjust and service electric motors and small gasoline engines.

08.0 DESCRIBE PRINCIPLES OF INTERNAL COMBUSTION ENGINES OPERATION--The student will be able to:

08.01 Classify types of engines.
08.02 Describe the principles involved in the operation of internal combustion engines.

09.0 DIAGNOSE, SERVICE AND REPAIR INTERNAL COMBUSTION ENGINES (Level 1)--The student will be able to:

09.01 Troubleshoot components of the engine using recommended testing equipment.

19.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

19.04 Identify applicable insurance requirements.
19.05 Identify applicable personal/business tax liability.
19.09 Complete supervised agricultural experience (SAE) records.

20.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS (Level 1)--The student will be able to:

20.05 Complete a job application.
20.06 Demonstrate competence in job-interview techniques.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.04 Identify basic concepts of physics in agricultural applications.
21.05 Identify basic concepts of chemistry in agricultural applications.
21.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references. (Level 1)
21.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure. (Level 1)
21.09 Demonstrate the scientific method in agricultural problem solving. (Level 1)

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Agricultural Machinery Services	PROGRAM NUMBER:	8103000
COURSE TITLE:	Agricultural Machinery Services 4	COURSE NUMBER:	8103040

COURSE DESCRIPTION:

This course is designed to develop competencies in the ares of safety; diagnosis and repair of internal combustion engines, electrical systems, fuel delivery systems, and lubrication systems; business management, employability and problem solving skills.

01.0 PRACTICE PERSONAL, EQUIPMENT OPERATION AND GENERAL SHOP SAFETY (Level 4)--(The student will be able to:

- 01.01 Wear personal safety equipment and clothing for the task to be performed.
- 01.02 Study and understand each task before it is attempted.
- 01.03 Keep the work area free of clutter, flammable materials and other potential hazards.
- 01.04 Operate machinery and equipment according to recommendations in the Operator's Manual.
- 01.05 Follow all recommended safety precautions.

09.0 DIAGNOSE, SERVICE AND REPAIR INTERNAL COMBUSTION ENGINES (Level 2)--The student will be able to:

- 09.01 Troubleshoot components of the engine using recommended testing equipment.
- 09.02 Remove, clean, test, repair and replace components of the basic engine.
- 09.03 Service and adjust all parts of the engine for proper operation.

10.0 DIAGNOSE, SERVICE AND REPAIR THE ELECTRICAL SYSTEM--The student will be able to:

- 10.01 Troubleshoot the electrical system, using recommended testing equipment.
- 10.02 Replace and repair components of the electrical system.
- 10.03 Adjust or set all parts of system for proper operation.

11.0 DIAGNOSE, SERVICE AND REPAIR THE FUEL DELIVERY SYSTEM--The student will be able to:

- 11.01 Clean, rebuild, replace carburetors.
- 11.02 Bleed diesel fuel system.
- 11.03 Check and adjust diesel fuel injection pump.
- 11.04 Replace parts of fuel system components.
- 11.05 Replace components of the fuel system.
- 11.06 Service and adjust parts of the fuel system for proper operation.

12.0 DIAGNOSE, SERVICE AND REPAIR THE LUBRICATION SYSTEM--The student will be able to:

- 12.01 Change oil filters.
- 12.02 Check and change oils and other lubricants in engines.
- 12.03 Service and replace parts of the system components.
- 12.04 Replace components of the system.
- 12.05 Service and adjust all parts of the system for proper operation.

19.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

- 19.06 Complete basic personal/business tax liability forms.
- 19.07 Interpret enterprise budgets and amortization tables.
- 19.09 Complete supervised agricultural experience (SAE) records.

20.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS (Level 1)--The student will be able to:

20.07 Demonstrate proper office procedures.
20.08 Demonstrate appropriate response to criticism form employer, supervisor, or other persons in the workplace.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references. (Level 2)
21.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure. (Level 2)
21.09 Demonstrate the scientific method in agricultural problem solving. (Level 2)

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Agricultural Machinery Services	PROGRAM NUMBER:	8103000
COURSE TITLE:	Agricultural Machinery Services 5	COURSE NUMBER:	8103050

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of safety; diagnosis and repair of internal combustion engines, cooling systems, mechanical and hydraulic transmissions, hydraulic systems; employability, business management and problem solving skills.

01.0 PRACTICE PERSONAL, EQUIPMENT OPERATION AND GENERAL SHOP SAFETY (Level 5)--(The student will be able to:

01.01 Wear personal safety equipment and clothing for the task to be performed.
01.02 Study and understand each task before it is attempted.
01.03 Keep the work area free of clutter, flammable materials and other potential hazards.
01.04 Operate machinery and equipment according to recommendations in the Operator's Manual.
01.05 Follow all recommended safety precautions.

09.0 DIAGNOSE, SERVICE AND REPAIR INTERNAL COMBUSTION ENGINES (Level 3)--The student will be able to:

09.01 Troubleshoot components of the engine using recommended testing equipment.
09.02 Remove, clean, test, repair and replace components of the basic engine.
09.03 Service and adjust all parts of the engine for proper operation.

13.0 DIAGNOSE, SERVICE, REPAIR AND MAINTAIN THE COOLING SYSTEM--The student will be able to:

13.01 Test coolant.
13.02 Flush and clean system.
13.03 Test parts of the system.
13.04 Rebuild water pump.
13.05 Replace all parts of system.
13.06 Adjust all system parts for proper operation.

14.0 DIAGNOSE, SERVICE AND REPAIR THE MECHANICAL AND HYDRAULIC TRANSMISSION SYSTEM--The student will be able to:

- 14.01 Troubleshoot clutch components using recommended testing equipment.
- 14.02 Remove, clean, test, repair, replace parts of system components.
- 14.03 Remove, adjust, replace clutch components.
- 14.04 Service and adjust parts of different kinds of clutches for proper operation.

15.0 DIAGNOSE, SERVICE, REPAIR AND MAINTAIN THE HYDRAULIC SYSTEM--The student will be able to:

- 15.01 Change filters, drain, flush and refill hydraulic system.
- 15.02 Troubleshoot hydraulic system components, using recommended testing equipment.
- 15.03 Remove, clean, test, repair, replace parts of system components.
- 15.04 Remove, adjust, replace system components.
- 15.05 Service and adjust components and system for proper operation.

19.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

- 19.08 Identify characteristics of legal instruments (i.e., contracts, deeds, and leases).
- 19.09 Complete supervised agricultural experience (SAE) records.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

- 21.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references. (Level 3)
- 21.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure. (Level 3)
- 21.09 Demonstrate the scientific method in agricultural problem solving. (Level 3)

STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture

COURSE CREDIT: 1

PROGRAM TITLE: Agricultural Machinery Services

PROGRAM NUMBER: 8103000

COURSE TITLE: Agricultural Machinery Services 6

COURSE NUMBER: 8103060

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of safety; diagnosis and repair of internal combustion engines, brake systems, exhaust systems and final drive systems; employability and problem solving skills.

01.0 PRACTICE PERSONAL, EQUIPMENT OPERATION AND GENERAL SHOP SAFETY (Level 6)--(The student will be able to:

- 01.01 Wear personal safety equipment and clothing for the task to be performed.
- 01.02 Study and understand each task before it is attempted.
- 01.03 Keep the work area free of clutter, flammable materials and other potential hazards.
- 01.04 Operate machinery and equipment according to recommendations in the Operator's Manual.
- 01.05 Follow all recommended safety precautions.

09.0 DIAGNOSE, SERVICE AND REPAIR INTERNAL COMBUSTION ENGINES (Level 4)--The student will be able to:

09.01 Troubleshoot components of the engine using recommended testing equipment.
09.02 Remove, clean, test, repair and replace components of the basic engine.
09.03 Service and adjust all parts of the engine for proper operation.

16.0 DIAGNOSE, SERVICE, REPAIR AND MAINTAIN THE BRAKE SYSTEM--the student will be able to:

16.01 Drain, refill, bleed and adjust the brake system.
16.02 Test brake system components using recommended testing equipment.
16.03 Remove, clean, test, repair, replace parts of system components.
16.04 Remove, adjust, replace system components.
16.05 Service and adjust components and system for proper operation.

17.0 DIAGNOSE, SERVICE AND REPAIR INTAKE AND EXHAUST SYSTEM--The student will be able to:

17.01 Check and test intake and exhaust system parts using recommended methods and testing equipment.
17.02 Remove, clean, test, repair, replace parts of system components.
17.03 Remove, adjust, replace components of intake and exhaust system.
17.04 Service and adjust components and system for proper operation.

18.0 DIAGNOSE, SERVICE AND REPAIR FINAL DRIVE SYSTEM--The student will be able to:

18.01 Check and test final drive system parts using recommended methods and testing equipment.
18.02 Remove, clean, test, repair replace parts of final drive system.
18.03 Remove, adjust, replace components of final drive system.
18.04 Service and adjust components and system for proper operation.

20.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS (Level 2)--The student will be able to:

20.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
20.02 Identify acceptable work habits (ethics) and desired personal characteristics.
20.03 Demonstrate acceptable employee-hygiene habits.
20.04 Secure information about a job.
20.05 Complete a job application.
20.06 Demonstrate competence in job-interview techniques.
20.07 Demonstrate proper office procedures.
20.08 Demonstrate appropriate response to criticism form employer, supervisor, or other persons in the workplace.
20.09 Demonstrate how to appropriately make a career change.
20.10 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references. (Level 4)
21.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure. (Level 4)
21.09 Demonstrate the scientific method in agricultural problem solving. (Level 4)

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Agricultural Mechanics

CODE NUMBER: Secondary 8103100 Postsecondary______

Florida CIP 0101.020300

SECONDARY SCHOOL CREDITS 3 COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): ____ 6-9 ____ 9-12 ____ Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:
VOC AGRI @4
AGRI @4 AGRICULTUR 1 2
AGRI MECH #7

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farmworkers, machine (409.683-010), farm machine operators (409.683-010), farm machine tenders (409.685-010), maintenance mechanic helpers (621.664-014), tractor mechanic helpers (620.684-030), farm equipment mechanic apprentices (624.281-014), farm machinery set-up mechanics (624.381-018), or to provide supplemental training for persons previously or currently employed in these occupations.

This program is a standard core for advanced agricultural programs.

The content includes, but is not limited to, instruction that prepares individuals to select, safely use and maintain hand and power tools, arc and acetylene welding equipment and construction materials. Subject matter also includes the maintenance, operation and minor repair of agricultural equipment, as well as employability, communication and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8103120	Agricultural Mechanics 2
8103130	Agricultural Mechanics 3

II. LABORATORY ACTIVITIES: Shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, hand and portable power carpentry tools, field hand tools, arc welders, oxy-acetylene torches, tractors and field equipment and power shop equipment.

III. SPECIAL NOTE: FFA is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Practice personal, equipment and shop safety (Level I & II)
11. Use and service selected portable hand and power tools.
12. Plan, sketch and construct a shop project.
13. Repair and recondition tools.
14. Demonstrate electric and gas welding.
15. Prepare and finish (paint) wood and metal surfaces.
16. Service and maintain small gasoline engines.
17. Install and repair simple electrical circuits, motors and controls.
18. Perform basic plumbing procedures.
19. Mix and place concrete and use masonry materials.
20. Service, operate and maintain agricultural structures and projects.
21. Fabricate and maintain agricultural structures and projects.
22. Plan and install a basic irrigation system.
23. Apply business management skills and identify appropriate legal documents.
24. Demonstrate employability skills.
25. Identify applicable local, state and federal rules and regulations.

STUDENT PERFORMANCE STANDARD EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8103100

PROGRAM TITLE: Agricultural Mechanics POSTSECONDARY NUMBER: _____

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 PRACTICE PERSONAL, EQUIPMENT AND SHOP SAFETY--The student will be able to:

- 10.01 Identify and eliminate hazards in agricultural mechanics settings.
- 10.02 Describe appropriate actions in case of fire, accident or other emergencies.

11.0 USE AND SERVICE SELECTED PORTABLE HAND AND POWER TOOLS--The student will be able to:

- 11.01 Select and safely use hand and portable power tools in agricultural mechanics.

12.0 PLAN, SKETCH AND CONSTRUCT A SHOP PROJECT--The student will be able to:

- 12.01 Plan, sketch, lay-out and construct a personal shop project.
- 12.02 Calculate a bill of materials.
- 12.03 Use common drawing instruments.

13.0 REPAIR AND RECONDITION TOOLS--The student will be able to:

- 13.01 Restore worn, damaged or abused tools to safe working condition.
- 13.02 Select and demonstrate appropriate procedures for sharpening tools.

14.0 DEMONSTRATE ELECTRIC AND GAS WELDING--The student will be able to:

- 14.01 Select and use gas welding equipment.
- 14.02 Select and use electric are welding equipment and materials.

15.0 PREPARE AND FINISH (PAINT) WOOD AND METAL SURFACES--The student will be able to:

- 15.01 Identify and select appropriate finishes.
- 15.02 Prepare surfaces (wood & metal) and apply finishes.

16.0 SERVICE AND MAINTAIN SMALL GASOLINE ENGINES--The student will be able to:

- 16.01 Identify major parts and describe general operation of small gasoline engines (2 & 4 stroke cycle).
- 16.02 Practice appropriate safety precautions.
- 16.03 Trouble shoot and perform minor repairs on small gasoline engines.

17.0 INSTALL AND REPAIR SIMPLE ELECTRICAL CIRCUITS, MOTORS AND CONTROLS--The student will be able to:

- 17.01 Plan and install a simple wiring system.
- 17.02 Test electrical circuits.
- 17.03 Install electric motors and controls.

18.0 PERFORM BASIC PLUMBING PROCEDURES--The student will be able to:

- 18.01 Identify plumbing materials and tools.
- 18.02 Plan and construct a simple water delivery system.
- 18.03 Troubleshoot and make minor plumbing repairs.

19.0 MIX AND PLACE CONCRETE AND USE MASONRY MATERIALS--The student will be able to:

- 19.01 Calculate concrete and other materials for a masonry project.
- 19.02 Prepare forms, mix and pour concrete.
- 19.03 Lay concrete block and/or brick.

20.0 SERVICE, OPERATE, AND MAINTAIN AGRICULTURAL MACHINERY AND EQUIPMENT--The student will be able to:

- 20.01 Setup, adjust and operate selected agricultural equipment.
- 20.02 Maintain and repair selected agricultural equipment.
- 20.03 Keep equipment maintenance records.

21.0 FABRICATE AND MAINTAIN AGRICULTURAL STRUCTURES AND PROJECTS--The student will be able to:

21.01 Read and interpret basic construction plans.
21.02 Layout an agricultural structure for construction.
21.03 Demonstrate basic carpentry construction and procedures.
21.04 Construct a fence.

22.0 PLAN AND INSTALL A BASIC IRRIGATION SYSTEM--The student will be able to:

22.01 Determine irrigation requirements.
22.02 Plan and layout an irrigation system.
22.03 Repair and maintain an irrigation system.

23.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

23.01 Complete basic business records.
23.02 Demonstrate use of banking procedures.
23.03 Identify personal/business liability and the use of liability insurance.
23.04 Identify applicable insurance requirements.
23.05 Identify applicable personal/business tax liability.
23.06 Complete basic personal/business tax liability forms.
23.07 Identify requirements of Greenbelt and Homestead Taxation.
23.08 Interpret enterprise budgets and amortization tables.
23.09 Identify characteristics of legal instruments (i.e., contracts, deeds, and leases).
23.10 Complete supervised agricultural experience (SAE) records.

24.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

24.01 Demonstrate acceptable employee-hygiene habits.
24.02 Secure information about a job.
24.03 Complete a job application.
24.04 Demonstrate competence in job-interview techniques.
24.05 Demonstrate proper office procedures.
24.06 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
24.07 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

25.0 IDENTIFY APPLICABLE LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS--The student will be able to:

25.01 Identify applicable land-use and zoning regulations.
25.02 Identify agencies regulating employee/employer (e.g. OSHA).

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
COURSE CREDIT: 1
PROGRAM TITLE: Agricultural Mechanics
PROGRAM NUMBER: 8103100
COURSE TITLE: Agriscience Foundations
COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

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STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — COURSE CREDIT: 1

PROGRAM TITLE: Agricultural Mechanics — PROGRAM NUMBER: 8103100

COURSE TITLE: Agricultural Mechanics 2 — COURSE NUMBER: 8103120

COURSE DESCRIPTION:

This course is designated to develop competencies in the areas of safety, hand and power tools, tool repair, finishing surfaces, agricultural structures, basic plumbing and basic irrigation.

10.0 PRACTICE PERSONAL, EQUIPMENT AND SHOP SAFETY--The student will be able to:

10.01 Identify and eliminate hazards in agricultural mechanics settings.
10.02 Describe appropriate actions in case of fire, accident or other emergencies.

11.0 USE AND SERVICE SELECTED PORTABLE HAND AND POWER TOOLS--The student will be able to:

11.01 Select and safely use hand and portable power tools in agricultural mechanics.

12.0 PLAN, SKETCH AND CONSTRUCT A SHOP PROJECT--The student will be able to:

12.01 Plan, sketch, lay-out and construct a personal shop project.
12.02 Calculate a bill of materials.
12.03 Use common drawing instruments.

13.0 REPAIR AND RECONDITION TOOLS--The student will be able to:

13.01 Restore worn, damaged or abused tools to safe working condition.
13.02 Select and demonstrate appropriate procedures for sharpening tools.

15.0 PREPARE AND FINISH (PAINT) WOOD AND METAL SURFACES--The student will be able to:

15.01 Identify and select appropriate finishes.
15.02 Prepare surfaces (wood & metal) and apply finishes.

18.0 PERFORM BASIC PLUMBING PROCEDURES--The student will be able to:

18.01 Identify plumbing materials and tools.
18.02 Plan and construct a simple water delivery system.
18.03 Troubleshoot and make minor plumbing repairs.

21.0 FABRICATE AND MAINTAIN AGRICULTURAL STRUCTURES AND PROJECTS--The student will be able to:

21.01 Read and interpret basic construction plans.
21.02 Layout an agricultural structure for construction.
21.03 Demonstrate basic carpentry construction and procedures.
21.04 Construct a fence.

22.0 PLAN AND INSTALL A BASIC IRRIGATION SYSTEM--The student will be able to:

22.01 Determine irrigation requirements.
22.02 Plan and layout an irrigation system.
22.03 Repair and maintain an irrigation system.

23.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

23.01 Complete basic business records.
23.02 Demonstrate use of banking procedures.
23.03 Identify personal/business liability and the use of liability insurance.
23.04 Identify applicable insurance requirements.
23.05 Identify applicable personal/business tax liability.
23.06 Complete basic personal/business tax liability forms.

24.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

24.01 Demonstrate acceptable employee-hygiene habits.
24.02 Secure information about a job.
24.03 Complete a job application.
24.04 Demonstrate competence in job-interview techniques.
24.05 Demonstrate proper office procedures.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Agricultural Mechanics
PROGRAM NUMBER: 8103100

COURSE TITLE: Agricultural Mechanics 3
COURSE NUMBER: 8103130

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of safety, electric and gas welding, agricultural machinery, electric motors and circuits, concrete, business management, and leadership, employability, communications and human relations skills.

10.0 PRACTICE PERSONAL, EQUIPMENT AND SHOP SAFETY--The student will be able to:

10.01 Identify and eliminate hazards in agricultural mechanics settings.
10.02 Describe appropriate actions in case of fire, accident or other emergencies.

14.0 DEMONSTRATE ELECTRIC AND GAS WELDING--The student will be able to:

14.01 Select and use gas welding equipment.
14.02 Select and use electric are welding equipment and materials.

16.0 SERVICE AND MAINTAIN SMALL GASOLINE ENGINES--The student will be able to:

16.01 Identify major parts and describe general operation of small gasoline engines (2 & 4 stroke cycle).
16.02 Practice appropriate safety precautions.
16.03 Trouble shoot and perform minor repairs on small gasoline engines.

17.0 INSTALL AND REPAIR SIMPLE ELECTRICAL CIRCUITS, MOTORS AND CONTROLS--The student will be able to:

17.01 Plan and install a simple wiring system.
17.02 Test electrical circuits.
17.03 Install electric motors and controls.

19.0 MIX AND PLACE CONCRETE AND USE MASONRY MATERIALS--The student will be able to:

19.01 Calculate concrete and other materials for a masonry project.
19.02 Prepare forms, mix and pour concrete.
19.03 Lay concrete block and/or brick.

20.0 SERVICE, OPERATE, AND MAINTAIN AGRICULTURAL MACHINERY AND EQUIPMENT--The student will be able to:

20.01 Setup, adjust and operate selected agricultural equipment.
20.02 Maintain and repair selected agricultural equipment.
20.03 Keep equipment maintenance records.

23.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

23.07 Identify requirements of Greenbelt and Homestead Taxation.
23.08 Interpret enterprise budgets and amortization tables.
23.09 Identify characteristics of legal instruments (i.e., contracts, deeds, and leases).
23.10 Complete supervised agricultural experience (SAE) records.

24.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

24.04 Demonstrate competence in job-interview techniques.
24.06 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
24.07 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

25.0 IDENTIFY APPLICABLE LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS--The student will be able to:

25.01 Identify applicable land-use and zoning regulations.
25.02 Identify agencies regulating employee/employer (e.g. OSHA).

CURRICULUM FRAMEWORK   PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION   EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Agricultural Production Technology

CODE NUMBER: Secondary ______   Postsecondary ____________________

Florida CIP 0102.010100

SECONDARY
SCHOOL CREDITS _____   COLLEGE CREDITS _X_   POSTSECONDARY ADULT
VOCATIONAL CREDITS _____

APPLICABLE LEVEL(S): _____6-9 _____9-12 _____Postsecondary Adult Vocational

_X_ Postsecondary Vocational   _____ Other ____________________

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farm managers (71005507), production managers, general managers, farm (180.167-018), farmers, general (411.161-010), managers, production (180.161-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to manage land, water, machinery, financing, crops and/or livestock, labor and facilities as well as make contracts, manage taxes, keep records, analyze records and technical reports, and demonstrate leadership, employability, communication and human relations skills.

II. LABORATORY ACTIVITIES: Agricultural land laboratory and shop activities are an integral part of this program including crop production equipment, livestock production equipment, mechanics' tools, facility construction and maintenance tools, and chemical application equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Obtain and dispose of an agricultural enterprise.
02. Manage and supervise labor.
03. Manage crops.
04. Manage livestock.
05. Manage machinery and equipment.
06. Manage facilities.
07. Select sources and methods of financing the operation.
08. Keep and analyze financial, production and personnel records.
09. Market crops/livestock.

IV. INTENDEND OUTCOMES: Continued

10. Interpret technical information and incorporate it into managerial practices.
11. Integrate state and federal regulations into the operation.
12. Demonstrate leadership, communication, employability and human relations skills.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
SECONDARY NUMBER: ______
PROGRAM TITLE: Agricultural Production Technology
POSTSECONDARY NUMBER: 0102.010100

01.0 OBTAIN AND DISPOSE OF AGRICULTURAL ENTERPRISE--The student will be able to:

01.01 Determine land capability classes of farm or ranch.
01.02 List steps in obtaining title to real estate.
01.03 Determine advantage of using services of Soil Conservation Service(SCS).
01.04 Develop a farm or ranch rental/lease agreement.
01.05 Determine value of property.
01.06 Develop a will for transfer or disposal of property.

02.0 MANAGE AND SUPERVISE LABOR--The student will be able to:

02.01 Train and supervise workers.
02.02 Obtain information from workers necessary for employment.
02.03 List responsibilities and liability of employer regarding workers rights, safety and welfare.
02.04 List local, state and federal regulations regarding employment of workers.
02.05 Develop an employee work schedule.

03.0 MANAGE CROPS--The student will be able to:

03.01 Prepare a land use plan.
03.02 Determine long-range conservation practices.
03.03 Prepare soil for crops.
03.04 Select crop varieties best suited for land, market and type of farm operation.
03.05 Determine seeding/planting rate and spacing.
03.06 Calibrate and adjust planting equipment.
03.07 Plant crops.
03.08 Select appropriate cultural practices including cultivation, fertilization and irrigation.
03.09 Identify and control diseases, insects and pests.
03.10 Determine maturity of crops.
03.11 Harvest crops.
03.12 Store crops.
03.13 Determine most advantagious method of marketing crops.

04.0 MANAGE LIVESTOCK--The student will be able to:

04.01 Select and/or breed livestock.
04.02 Determine nutritional requirements and balance livestock rations.
04.03 Prepare a feeding schedule.
04.04 Determine quality of pasture range or forage.
04.05 Provide for winter rations and supplements.
04.06 Maintain pasture fertility and quality.
04.07 Develop a breeding/marketing plan for operation.
04.08 Cull unproductive animals.
04.09 Provide aid for animals with parturition problems.
04.10 Care for newborn livestock.
04.11 List causes of livestock infertility.
04.12 Provide mineral supplement for animals.
04.13 Determine most advantageous method of marketing livestock.
04.14 Transport livestock.
04.15 Identify and treat disorders, diseases and pests of livestock.

05.0 MANAGE MACHINERY AND EQUIPMENT--The student will be able to:

05.01 Assess needs for the purchases of new or replacement equipment.
05.02 Maintain oil, fuel and hydraulic levels in equipment.
05.03 Maintain tires, batteries and coolant system on all equipment and vehicles.

05.04 Operate and service small gasoline engines.
05.05 Replace hoses, belts and lines.
05.06 Cut and weld with oxy-acetylene and arc welding equipment.
05.07 Observe safety procedures when operating farm equipment.
05.08 Develop a general maintenance schedule.

06.0 MANAGE FACILITIES--The student will be able to:

06.01 Safely operate and maintain general farm shop tools and equipment.
06.02 Install and maintain electrical wiring and equipment.
06.03 Square and build a farm structure.
06.04 Determine a bill of materials for a farm construction project.
06.05 Form and pour concrete.
06.06 Build and repair fences, gates and pens.
06.07 Develop a general maintenance schedule for facilities and equipment.

07.0 SELECT SOURCES AND METHODS OF FINANCING THE OPERATION--The student will be able to:

07.01 List major sources of production credit.
07.02 List sources of credit for capital items and real estate.
07.03 Prepare a case using accepted forms for obtaining credit from farm lending institutions.

08.0 KEEP AND ANALYZE FINANCIAL, PRODUCTION AND PERSONNEL RECORDS--The student will be able to:

08.01 Keep fertilization and pesticide use records.
08.02 Keep equipment maintenance and service records.
08.03 Record cultural and production information.
08.04 Determine cost efficiency of operations.
08.05 Maintain labor and personnel records.
08.06 Prepare a farm tax return.
08.07 Prepare an annual budget
08.08 Determine credit, cash flow and investment returns.
08.09 Review sources and kinds of farm insurance.

09.0 MARKET CROPS/LIVESTOCK--The student will be able to:

09.01 Secure and interpret market information.
09.02 Select marketing channels for greatest profit.
09.03 Interpret elements of marketing agreements.
09.04 Market crops/livestock.
09.05 Provide for transportation of product to market.

10.0 INTERPRET TECHNICAL INFORMATION AND INCORPORATE IT INTO MANAGERIAL PRACTICES--The student will be able to:

10.01 Keep and maintain a file of current technical information from universities, governmental and commercial agencies.
10.02 Maintain a reference file for periodicals and other publications.
10.03 Attend seminars and workshops to update skills and knowledge.
10.04 Determine sources and advantages of using computer networking.

11.0 INTEGRATE STATE AND FEDERAL REGULATIONS INTO OPERATION--The student will be able to:

11.01 List agencies responsible for inspecting and regulating operation of product.
11.02 Secure necessary inspection certificates and registrations.
11.03 List reasons for the necessity of inspections, certifications and registrations.

12.0 DEMONSTRATE LEADERSHIP, COMMUNICATION, EMPLOYABILITY AND HUMAN RELATIONS SKILLS--The student will be able to:

12.01 Develop citizenship awareness and responsibility.
12.02 Demonstrate knowledge in organizing and conducting meetings.
12.03 Demonstrate effective communication skills.
12.04 Complete an employment application
12.05 Conduct a job search.
12.06 Demonstrate job interview skills.
12.07 Recognize appropriate work habits.
12.08 Identify associations and societies associated with occupation or profession.

CURRICULUM FRAMEWORK   PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION   EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Agricultural Services and Supplies

CODE NUMBER: Secondary ________   Postsecondary AEB0000

Florida CIP 0101.050101

SECONDARY SCHOOL CREDITS _____   COLLEGE CREDITS _____   POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): _____ 6-9   _____ 9-12   X Postsecondary Adult Vocational

______ Postsecondary Vocational   X Other 30,31

CERTIFICATION COVERAGE:
VOC AGRI @4
AGRI @2 @4
AG SUPPLI @7 G
AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as purchasing agents and buyers (21305042), field supervisors (180.167-014), field contact technicians (162.117-026); sales representatives, farm and garden equipment and supplies (272.357-014), sales representatives, animal feed products (272.357-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to sell agricultural supplies, provide agricultural services, and purchase, grade, store and market agricultural products. Subject matter also includes animal and plant care, pesticide application, maintenance and use of tools and equipment, laws and regulations, record keeping, and customer services, as well as leadership, employability, communication and human relations skills.

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, hand and portable power carpentry tools, field hand tools, power and hand chemcial applicators, arc welders, oxy-acetylene torches, and power lawn and garden equipment.

III. SPECIAL NOTE: The National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects; (3) placement for experience, (4) cooperative experience.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 8.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

Agricultural Services and Supplies - Continued

III. SPECIAL NOTE: Continued

To be transferable statewide between institutions, this program/course must have been reviewed, and a "transfer value" assigned the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific program or course articulation agreements with each other.

The typical length of this program for the average achieving student is 900 hours.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Provide feed and water for animals.
02. Maintain sanitary pens, cages and facilities for animals.
03. Observe animals for health problems and administer prescribed medication and treatment.
04. Manage the care of plant materials.
05. Observe plants for insects and diseases and apply prescribed pesticides.
06. Operate and service hand and power tools and equipment.
07. Maintain and repair facilities and equipment.
08. Perform business activities.
09. Display and sell merchandise.
10. Handle merchandise.
11. Observe local, state and federal rules and regulations.
12. Demonstrate leadership, communication, employability and human relations skills.

STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July, 19912

PROGRAM AREA: Agriculture

SECONDARY NUMBER: __________

PROGRAM TITLE: Agricultural Services and Supplies

POSTSECONDARY NUMBER: AEB0000

01.0 PROVIDE FEED AND WATER FOR ANIMALS--The student will be able to:

- 01.01 Recommend the use of additives and medications.
- 01.02 Determine feed needs in terms of nutrients for growth, production and reproduction.
- 01.03 Read and explain the meaning of the ingredients listed on feed tag.
- 01.04 Classify feeds in terms of nutrients, minerals and energy value.
- 01.05 Determine the form (pelleted, rolled, ground, etc.) in which feeds should be prepared for animals.
- 01.06 Trace the conversion of feed through the digestive process of livestock and animals.
- 01.07 Supply animals with clean fresh water supply.

02.0 MAINTAIN SANITARY PENS, CAGES AND FACILITIES FOR ANIMALS--The student will be able to:

- 02.01 Clean and disinfect pens, cages and facilities.
- 02.02 Maintain clean feeders.
- 02.03 Dispose of animal residue.
- 02.04 Maintain separate animal quarantine areas.
- 02.05 Safely remove and dispose of dead animals.

03.0 OBSERVE ANIMALS FOR HEALTH PROBLEMS AND ADMINISTER PRESCRIBED MEDICATION AND TREATMENT--The student will be able to:

- 03.01 Observe animal behavior daily for signs of health problems.
- 03.02 Perform emergency first aid.
- 03.03 Restrain animals.
- 03.04 Administer oral medications under supervision.
- 03.05 Administer injections under supervision.
- 03.06 Clean and sterilize instruments used in health care.
- 03.07 Apply recommended treatment for external animal pests.
- 03.08 Collect and ship specimens for laboratory analysis.

04.0 MANAGE THE CARE OF PLANT MATERIALS--The student will be able to:

- 04.01 Maintain plant moisture.
- 04.02 Fertilize plants.
- 04.03 Maintain plant fertility.
- 04.04 Display plants.
- 04.05 Prune and trim dead foliage from plants.
- 04.06 Protect tender plants from cold damage.

05.0 OBSERVE PLANTS FOR INSECTS AND DISEASES AND APPLY PRESCRIBED PESTICIDES--The student will be able to:

- 05.01 Identify insects and disease pests of plants.
- 05.02 Apply recommended pesticides.
- 05.03 Clean and maintain pesticide application equipment.
- 05.04 Develop a preventative pest control program.
- 05.05 Demonstrate safety in the use of pesticides.

06.0 OPERATE AND SERVICE HAND AND POWER TOOLS AND EQUIPMENT--The student will be able to:

- 06.01 Service electric motors.
- 06.02 Sharpen hand tools and blades.
- 06.03 Operate and service small gasoline engines and equipment.
- 06.04 Replace chains and belts.
- 06.05 Repair and replace irrigation sprinklers and valves.
- 06.06 Safely use hand and portable power tools.
- 06.07 Repair and replace electrical cords, switches and recepticals.
- 06.08 Grease and lubricate tools and equipment.
- 06.09 Calibrate and adjust equipment.

07.0 MAINTAIN AND REPAIR FACILITIES AND EQUIPMENT--The student will be able to:

07.01 Operate and clean agricultural equipment appropriate to business.
07.02 Paint facilities and equipment.
07.03 Clean and sharpen hand and power equipment.
07.04 Service small gasoline engine equipment.
07.05 Lubricate equipment.
07.06 Clean and maintain grounds and walkways.
07.07 Clean and maintain facilities.
07.08 Construct and repair structures.
07.09 Maintain and repair electrical wiring and equipment.
07.10 Operate and maintain portable power tools.
07.11 Assemble tools and equipment according to directions.
07.12 Keep equipment maintenance and repair records.

08.0 PERFORM BUSINESS ACTIVITIES--The student will be able to:

08.01 Open and close the store.
08.02 Operate sales counter.
08.03 Set up merchandise for display.
08.04 File business records.
08.05 Check received merchandise against invoice.
08.06 Update price lists and catalogs.
08.07 Maintain ledger of accounts.
08.08 Order supplies and equipment.

09.0 DISPLAY AND SELL MERCHANDISE--The student will be able to:

09.01 Display plants and animals.
09.02 Display equipment and tools.
09.03 Display feeds, seeds, hardware, fertilizers and pesticides.
09.04 Fill customer orders.
09.05 Help customer select plants, animals and other merchandise.
09.06 Take orders by phone.
09.07 Weigh out bulk merchandise for customer.
09.08 Inspect and follow-up quality of services performed for customer.
09.09 Describe purpose and quality of products sold.

10.0 HANDLE MERCHANDISE--The student will be able to:

10.01 Load and unload delivery vehicles.
10.02 Store received plants, animals and other supplies.
10.03 Prepare plants, animals and other merchandise for shipment.
10.04 Safely store flammable liquids and agricultural chemicals.

11.0 OBSERVE LOCAL, STATE AND FEDERAL RULES AND REGULATIONS--The student will be able to:

11.01 Maintain health, breed association and inspection certificates.
11.02 Maintain state and federal tax records.
11.03 Observe EPA regulations.
11.04 List governmental and regulatory agencies related to business.
11.05 List sources of information and services available from private, state and federal agencies.

12.0 DEMONSTRATE LEADERSHIP, COMMUNICATIONS, EMPLOYABILITY AND HUMAN RELATIONS SKILLS--The student will be able to:

12.01 Conduct a job search.
12.02 Secure information about a job.
12.03 Identify documents that may be required when applying for a job.
12.04 Complete a job application form correctly.
12.05 Demonstrate competence in job interview techniques.
12.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
12.07 Identify acceptable work habits.
12.08 Demonstrate knowledge of how to make job changes appropriately.
12.09 Demonstrate acceptable employee health habits.

PS/11/12/91

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Agricultural Services and Supplies Technology

CODE NUMBER: Secondary ______ Postsecondary ______

Florida CIP 0101.050102

SECONDARY SCHOOL CREDITS _____ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS _____

APPLICABLE LEVEL(S): _____6-9 _____9-12 _____Postsecondary Adult Vocational

X Postsecondary Vocational ______ Other ______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as purchasing agents and buyers (21305043), field contractors (162.117-022), field inspectors, disease and insect control (408.687-010), field contact technicians (162.117-026), buyers (162.157-018), sales representatives, agricultural supplies (274.357-030), inspectors, graders, agricultural establishment (409.687-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to provide agricultural services, sell agricultural supplies, manage agricultural supplies and products, analyze technical information and provide recommendations regarding the use of agricultural supplies and products. Subject matter includes record keeping, safety and credit, as well as leadership, employability, communication and human and public relations skills.

II. LABORATORY ACTIVITIES: Shop and land laboratory activities are an integral part of this program including the safe use of animal health care instruments, chemical applicators, tractors and equipment, hand tools, portable power tools and irrigation equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Manage the care, nutrition, sanitation and comfort of animals.
02. Develop and manage a schedule for the prevention and treatment of animal diseases and parasites.
03. Supervise the culture and care of plant materials.
04. Develop and manage a system of pest control, irrigation and fetilization of plants.
05. Manage equipment, structures and facilities.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

06. Identify local, state and federal regulations and apply to the operation.
07. Interpret and incorporate technical information into management practices.
08. Provide a safe working environment.
09. Provide customer services.
10. Keep and analyze financial, inventory, legal and personnel records.
11. Determine sources and methods of financing the enterprise.
12. Demonstrate leadership, employability, communication, and human and public relations skills.

CF/12/16/91

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture SECONDARY NUMBER: ____________
PROGRAM TITLE: Agricultural Services and Supplies Technology POSTSECONDARY NUMBER: 0101.050102

01.0 MANAGE THE CARE, NUTRITION, SANITATION AND COMFORT OF ANIMALS--The student will be able to:

01.01 Recommend the use of additives and medications to animal feed.
01.02 Determine feed needs in terms of nutrients for growth, production and reproduction.
01.03 Interpret and explain the meaning of the ingredients listed on feed labels.
01.04 Classify feeds in terms of nutrients, minerals and energy value.
01.05 Determine the form (pelleted, rolled, ground, etc.) in which feeds shoulds be prepared for animals.
01.06 Trace the conversion of feed through the digestive process of livestock and animals.
01.07 Supply animals with clean fresh water supply.
01.08 Supervise the cleaning and maintenance of pens, cages and facilities.
01.09 Manage the disposal of animal residue.
01.10 Maintain separate animal quarantine areas.
01.11 Manage the safe removal and disposal of dead animals.

02.0 DEVELOP AND MANAGE A SCHEDULE FOR THE PREVENTION AND TREATMENT OF ANIMAL DISEASES AND PARASITES--The student will be able to:

02.01 Observe animal behavior daily for signs of health problems.
02.02 Perform emergency first aid.
02.03 Restrain animals.
02.04 Administer oral medication as prescribed.
02.05 Administer injections as prescribed.
02.06 Supervise and manage the treatment of animals for external parasites.
02.07 Collect and ship animal specimens for laboratory analysis.
02.08 Develop a schedule of preventive medicine and parasite control.

03.0 SUPERVISE THE CULTURE AND CARE OF PLANT MATERIALS--The student will be able to:

03.01 Maintain plant moisture.
03.02 Supervise and manage the fertilization of plants.
03.03 Display plants.
03.04 Supervise the pruning and removal of dead foliage from plants.
03.05 Protect plants from cold damage.

04.0 DEVELOP AND MANAGE A SYSTEM OF PEST CONTROL, IRRIGATION AND FERTILIZATION OF PLANTS--The student will be able to:

04.01 Identify insect and disease pests of plants.
04.02 Manage and supervise the use of pesticides.
04.03 Develop a preventive pest control program.
04.04 Train and supervise workers in the safe use of pesticides.
04.05 Advise customers of the safe use of pesticides.
04.06 Recognize symptoms of pesticide poisoning.
04.07 Apply emergency first aid.

05.0 MANAGE EQUIPMENT, STRUCTURES AND FACILITIES--The student will be able to:

05.01 Maintain equipment, tool, service and maintenance records.
05.02 Supervise the assembly of tools and equipment.
05.03 Manage the service of facilities, tools and equipment.
05.04 Demonstrate service and use of gasoline-powered equipment.
05.05 Demonstrate the safe use of portable power tools.
05.06 Repair and replace belts, chains, irrigation sprinklers, valves, electrical cords and switches.
05.07 Demonstrate the use and calibration of equipment.
05.08 Supervise the maintenance of facilities and grounds.
05.09 Supervise the construction of pens, gates and small structures.
05.10 Identify items of hardware and tools.

06.0 IDENTIFY LOCAL, STATE AND FEDERAL REGULATIONS AND APPLY TO THE OPERATION--The student will be able to:

06.01 Maintain health, breed association and inspection certificates.
06.02 Maintain and observe EPA regulations.
06.03 List agencies responsible for the regulation of the industry.
06.04 Observe and train employees to observe regulations relative to the operation.

07.0 INTERPRET AND INCORPORATE TECHNICAL INFORMATION INTO MANAGEMENT PRACTICES--The student will be able to:

07.01 Keep and maintain a file of current technical information from universities, governmental agencies and commercial companies.
07.02 Maintain a reference file for periodicals and other publications.
07.03 Select and attend seminars and workshops to update skills and knowledge.
07.04 List sources of technical and professional information.

08.0 PROVIDE A SAFE WORKING ENVIRONMENT--The student will be able to:

08.01 Observe and demonstrate the use of personal safety equipment and clothing for a particular task.
08.02 Maintain all guards, shields and safety devices on tools and equipment.
08.03 Maintain facilities and work areas free of clutter and flamable materials.
08.04 Train and supervise employees in safe and proper work habits.
08.05 Maintain and display fire extinguishing equipment.

09.0 PROVIDE CUSTOMER SERVICES--The student will be able to:

09.01 Display plant, animals, equipment, tools, feeds, seeds, hardware, fertilizers and pesticides.
09.02 Fill customer orders.
09.03 Help customers selects plants, animals and merchandise.
09.04 Take telephone orders.
09.05 Inspect and follow-up quality of services provided for customer.
09.06 Supervise and manage the unloading and storage of merchandise and supplies.
09.07 Prepare animals and plants for shipment.
09.08 Handle customer requests and complaints.

10.0 KEEP AND ANALYZE FINANCIAL, INVENTORY, LEGAL AND PERSONNEL RECORDS--The student will be able to:

10.01 File business records.
10.02 Check received merchandise against invoice.
10.03 Update price lists and catalogs.
10.04 Maintain ledger of accounts.
10.05 Maintain inventory and order supplies and equipment.
10.06 Maintain employee records.
10.07 Maintain accurate tax records.
10.08 Maintain current licenses, certificates and inspections.
10.09 Analyze business records.
10.10 File and maintain legal records and documents.

11.0 DETERMINE SOURCES AND METHODS OF FINANCING THE ENTERPRISE--The student will be able to:

11.01 Determine need for long-term and short-term financing.
11.02 Analyze sources and terms of credit.
11.03 List sources of credit and financing.
11.04 Prepare a case for obtaining financing from a lending institution.

12.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, HUMAN AND PUBLIC RELATIONS SKILLS--The student will be able to:

12.01 Conduct a job search.
12.02 Secure information about a job.
12.03 Identify documents that may be required when applying for a job.
12.04 Complete a job application form correctly.
12.05 Demonstrate competence in job interview techniques.
12.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
12.07 Identify acceptable work habits.
12.08 Demonstrate knowledge of how to make job changes appropriately.
12.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July 1992

PROGRAM TITLE: Agritechnology

CODE NUMBER: Secondary 8106800 Postsecondary ____

Florida CIP 0101.039901

SECONDARY SCHOOL CREDITS 3 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____7-9 ____9-12 ____ Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12, 30, 31

CERTIFICATION COVERAGE: VOC AGRI @4 AGRI @4
AGRI PROD #7 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment in positions in the agriculture industry, including: Farm Worker (74002503); Farmworker, Diversified Crops (407.687-010); Farm-Machine Tender (409.685-010); Farmworker, Livestock (410.664-010); Agricultural Product Salesperson; Agricultural Product Marketing Representative; Farm and Garden Supply Worker; Custom Harvest Operator; or Fertilizer Service Worker; or to provide supplemental training for persons previously or currently employed in these occupations.

This program is a standard core for the following advanced agricultural programs: Crop Production, Citrus Production.

Completers of this program will be prepared to enter advanced training and education in specialized fields of agriscience or agribusiness. They may also be employed as trainees or beginning workers in various agriscience- or agribusiness-related positions in certain businesses and industries.

The content includes, but is not limited to, instruction in livestock and crop production, processing, and marketing; agriculture sales and services; agricultural mechanics; employability skills; mathematics; basic science; biological sciences; communications; and human-relations skills.

Listed below are the courses that this program comprises when offered at the secondary level:

8106810	Agriscience Foundations
8106820	Agritechnology 1
8106830	Agritechnology 2

II. LABORATORY ACTIVITIES: Agriscience laboratory activities (shops, wet labs, land labs, and greenhouses) are an integral part of this program, which includes the safe use and application of high technology equipment, such as computers and computer software, telecommunications equipment, and scientific testing and observation equipment, as well as mechanics' tools, field tools, carpentry tools, arc welders, oxyacetylene torches, tractors and field equipment, chemical applicators, power sprayers, irrigation equipment, and fire-control hand equipment.

III. SPECIAL NOTE: Providing leadership training experiences and reinforcing specific vocational skills are integral parts of this instructional program and shall be provided. The FFA (secondary) and the National Postsecondary Agriculture Student Organization

III. SPECIAL NOTE: Continued

(postsecondary) are appropriate vocational student organizations for providing this training and students are encouraged to participate.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student project, (3) placement for experience, and (4) cooperative education. Because of the production and marketing cycle of agriscience industries, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Students can take the cooperative training either during or after completing the program. Whenever the cooperative method is offered, the following are required for each student: a training plan, signed by the student, teacher, and employer, which includes instructional objectives and a list of on-the-job and in-school learning experiences; a workstation that reflects equipment, skills, and tasks that are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The particular outcomes and student performance standards that the handicapped student must master to earn credit must be specific in the student's individual education plan (IEP). Additional credits may be earned when outcomes and standards are mastered, in accordance with the requirements indicated in subsequent IEPs. The job title for which the student is being trained must be designated in the IEP.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Explore the scope of the agriscience industry.
11. Provide for proper animal health and nutrition.
12. Identify procedures in animal production and reproduction.
13. Use procedures for exhibiting and marketing animals.
14. Compare, select, and use plant-production systems.
15. Fertilize plants and crops.
16. Irrigate plants and crops.
17. Control plant pests.
18. Operate, maintain, and service facilities, tools, and equipment.
19. Describe procedures for harvesting and marketing plant materials.
20. Apply principles of agribusiness finance.
21. Demonstrate leadership, employability, communication, and human-relations skills.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — SECONDARY NUMBER: 8106800

PROGRAM TITLE: Agritechnology — POSTSECONDARY NUMBER: ______

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Levels I & II.
10.02 Describe training requirements for entry and advancement in agriscience careers. Levels I & II.
10.03 Identify professional organizations and trade journals in the agriscience industry.

11.0 PROVIDE FOR PROPER ANIMAL HEALTH AND NUTRITION--The student will be able to:

11.01 Recognize and describe prevention and treatment of common animal diseases, disorders, and pests. Levels I & II.
11.02 Read, interpret, and follow directions on pesticide, medication, and other additive labels.
11.03 Clean and disinfect animal equipment and facilities.
11.04 Explain proper disposal of animal waste with regards to sanitation, economics, and environmental implications.
11.05 Describe nutritional requirements of animals.
11.06 Formulate and compute least-cost feed rations.
11.07 Select growth stimulators and implants.
11.08 Determine feeding rates and methods of feeding animals.

12.0 IDENTIFY PROCEDURES IN ANIMAL PRODUCTION AND REPRODUCTION--The student will be able to:

12.01 Identify major parts of livestock and poultry anatomy.
12.02 Identify commercially important breeds of animals.
12.03 Describe desirable characteristics of breeding and market animals.
12.04 Identify wholesale cuts of beef, pork, lamb, and poultry.
12.05 Compare and select appropriate breeding methods for different agricultural enterprises.
12.06 Explain the reproductive cycles of commercially important animals.
12.07 Identify signs of animal pregnancy, parturition, and infertility.
12.08 Describe approved care for newborn animals.
12.09 Describe methods of permanent animal identification.
12.10 Describe methods of restraining, loading, handling, and transporting animals safely.

13.0 USE PROCEDURES FOR EXHIBITING AND MARKETING ANIMALS--The student will be able to:

13.01 Demonstrate the procedures for preparing, maintaining, and exhibiting commercially important animals.
13.02 Collect and interpret market reports and identify market outlets for livestock.
13.03 Compare and select appropriate marketing systems.
13.04 Determine appropriate evaluation criteria for animals.
13.05 Prepare appropriate shipping and health certificates required for exhibiting or marketing animals.

14.0 COMPARE, SELECT, AND USE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.01 Compare different plant production systems.
14.02 Propagate, grow, and transplant plants.
14.03 Identify varieties of local commercial plants and field crops.
14.04 Select and prepare site and seed bed for planting.
14.05 Identify methods of pruning plants to achieve desired growth and to maintain health.
14.06 Calculate planting rate and spacing; solve time, distance, area, and volume problems in agriscience.
14.07 Operate and adjust planting equipment.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.01 Develop fertilization schedules and calculate fertilizer rates for plants; solve time, distance, area, and volume problems in agriscience.
15.02 Identify common nutrient-deficiency symptoms in plants.
15.03 Calibrate fertilization equipment and fertilize plants; solve time, distance, area, and volume problems in agriscience.
15.04 Interpret information on a fertilizer label.
15.05 Compare sources and forms of nutrients.
15.06 Determine methods of applying fertilizer materials.

16.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

16.01 Recognize soil and plant conditions indicating irrigation needs and develop an irrigation schedule.
16.02 Compare and select irrigation equipment and methods.
16.03 Install, operate, maintain, and repair irrigation equipment.

17.0 CONTROL PLANT PESTS--The student will be able to:

17.01 Identify common plant pests and their damages.
17.02 Describe life cycles of insects, pests, and diseases.
17.03 Identify the procedures and requirements for obtaining a restricted-use-pesticide operator's license.
17.04 Select, mix, and apply a nonrestricted chemical according to the label and local, state, federal and EPA regulations.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.01 Demonstrate basic facility maintenance, installation, or repair.
18.02 Safely operate, maintain, service, and repair equipment.
18.03 Use and maintain hand tools and power equipment (e.g., power saws, welders).
18.04 Maintain and service small gasoline engines.

19.0 DESCRIBE PROCEDURES FOR HARVESTING AND MARKETING PLANT MATERIALS--The student will be able to:

19.01 Determine maturity, condition, and volume of crops to be harvested.
19.02 Describe procedures for harvesting crops.
19.03 Determine kinds and types of storage facilities for crops.
19.04 Grade, treat, pack, and/or store harvested crop.
19.05 Interpret and analyze market information.
19.06 Compare, select, and locate marketing channels and develop a marketing program.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.01 Identify major sources of credit for agribusiness.
20.02 Complete a business loan application.
20.03 Explain the purposes and structures of contracts, leases, deeds, and insurance policies.
20.04 Maintain and interpret supervised agricultural experience (SAE) records (e.g., depreciation, inventory, budgets).

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.01 Conduct group meetings using parliamentary procedure and public-speaking skills.
21.02 Identify appropriate work and personal habits. Level I.
21.03 Identify appropriate work and personal habits. Level II.
21.04 Complete a job application.

STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture

COURSE CREDIT: 1

PROGRAM TITLE: Agritechnology

PROGRAM NUMBER: 8106800

COURSE TITLE: Agriscience Foundations

COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

AGRISCIENCE FOUNDATIONS - Continued

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

- 04.01 Describe the importance of using the proper tools and equipment for the job.
- 04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
- 04.03 Demonstrate the ability to use an equipment manual.
- 04.04 Demonstrate the use of selected tools and equipment.
- 04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

- 05.01 Identify major types of pests and weed infestations.
- 05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
- 05.03 Describe symptoms of pesticide poisoning.
- 05.04 Extract pertinent information from a pesticide label.
- 05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
- 05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
- 05.07 Identify the proper disposal of containers and residual pesticides.
- 05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

- 06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
- 06.02 Describe the functions of roots, stems, leaves, and flowers.
- 06.03 Demonstrate sexual and asexual plant propagation.
- 06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
- 06.05 Extract pertinent information from a fertilizer label.
- 06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

- 07.01 Identify basic economic principles applicable to agribusiness.
- 07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
- 07.03 Describe the types of agribusiness by organizational structure.
- 07.04 Select and use computer applications appropriate to agribusiness.
- 07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
- 07.06 Keep and maintain supervised agricultural experience (SAE) records.
- 07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

- 08.01 Describe key factors in marketing agricultural products.
- 08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

- 09.01 Demonstrate acceptable work habits and attitudes.
- 09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
- 09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
- 09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
COURSE CREDIT: 1
PROGRAM TITLE: Agritechnology
PROGRAM NUMBER: 8106800
COURSE TITLE: Agriscience Foundations
COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture

COURSE CREDIT: 1

PROGRAM TITLE: Agritechnology

PROGRAM NUMBER: 8106800

COURSE TITLE: Agritechnology 1

COURSE NUMBER: 8106820

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of agriscience industry careers; prevention and treatment of livestock diseases; livestock anatomy; wholesale cuts of meat; animal reproduction and identification; animal safety; animal-health certification; plant growth; plant fertilization; safe use of pesticides; maintenance of tools and equipment; record keeping; and employability skills.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Level I.
10.02 Describe training requirements for entry and advancement in agriscience careers. Level I.

11.0 PROVIDE FOR PROPER ANIMAL HEALTH AND NUTRITION--The student will be able to:

11.01 Recognize and describe prevention and treatment of common animal diseases, disorders, and pests. Level I.
11.03 Clean and disinfect animal equipment and facilities.
11.04 Explain proper disposal of animal waste with regard to sanitation, economics, and environmental implications.

12.0 IDENTIFY PROCEDURES IN ANIMAL PRODUCTION AND REPRODUCTION--The student will be able to:

12.01 Identify major parts of livestock and poultry anatomy.
12.02 Identify commercially important breeds of animals.
12.03 Describe desirable characteristics of breeding and market animals.
12.04 Identify wholesale cuts of beef, pork, lamb, and poultry.
12.05 Compare and select appropriate breeding methods for different agricultural enterprises.
12.06 Explain the reproductive cycles of commercially important animals.
12.07 Identify signs of animal pregnancy, parturition, and infertility.
12.08 Describe approved care for newborn animals.
12.09 Describe methods of permanent animal identification.
12.10 Describe methods of restraining, loading, handling, and transporting animals safely.

13.0 USE PROCEDURES FOR EXHIBITING AND MARKETING ANIMALS--The student will be able to:

13.01 Demonstrate the procedures for preparing, maintaining, and exhibiting commercially important animals.
13.04 Determine appropriate evaluation criteria for animals.
13.05 Prepare appropriate shipping and health certificates required for exhibiting or marketing animals.

14.0 COMPARE, SELECT, AND USE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.01 Compare different plant production systems.
14.02 Propagate, grow, and transplant plants.
14.04 Select and prepare site and seed bed for planting.
14.05 Identify methods of pruning plants to achieve desired growth and to maintain health.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.04 Interpret information on a fertilizer label.
15.05 Compare sources and forms of nutrients.
15.06 Determine methods of applying fertilizer materials.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.03 Use and maintain hand tools and power equipment (e.g., power saws, welders).
18.04 Maintain and service small gasoline engines.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.04 Maintain and interpret supervised agricultural experience (SAE) records (e.g., depreciation, inventory, budgets).

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.01 Conduct group meetings using parliamentary procedure and public-speaking skills.
21.02 Identify appropriate work and personal habits. Level I.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Agritechnology
PROGRAM NUMBER: 8106800

COURSE TITLE: Agritechnology 2
COURSE NUMBER: 8106830

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of job and training requirements; professional organizations; application of medications to livestock; animal nutrition; feeds and feeding; marketing livestock; crop identification; planting crops; fertilizer calculations and application; irrigation; pest control; harvesting, packing, and grading crops, safe equipment operation; finance; and employability skills.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Level II.
10.02 Describe training requirements for entry and advancement in agriscience careers. Level II.
10.03 Identify professional organizations and trade journals in the agriscience industry.

11.0 PROVIDE FOR PROPER ANIMAL HEALTH AND NUTRITION--The student will be able to:

11.01 Recognize and describe prevention and treatment of common animal diseases, disorders, and pests. Level II.
11.02 Read, interpret, and follow directions on pesticide, medication, and other additive labels.
11.05 Describe nutritional requirements of animals.
11.06 Formulate and compute least-cost feed rations.

11.07 Select growth stimulators and implants.
11.08 Determine feeding rates and methods of feeding animals.

13.0 USE PROCEDURES FOR EXHIBITING AND MARKETING ANIMALS--The student will be able to:

13.02 Collect and interpret market reports and identify market outlets for livestock.
13.03 Compare and select appropriate marketing systems.

14.0 COMPARE, SELECT, AND UTILIZE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.03 Identify varieties of local commercial plants and field crops.
14.06 Calculate planting rate and spacing; solve time, distance, area, and volume problems in agriscience.
14.07 Operate and adjust planting equipment.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.01 Develop fertilization schedules and calculate fertilizer rates for plants; solve time, distance, area, and volume problems in agriscience.
15.02 Identify common nutrient-deficiency symptoms in plants.
15.03 Calibrate fertilization equipment and fertilize plants; solve time, distance, area, and volume problems in agriscience.

16.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

16.01 Recognize soil and plant conditions indicating irrigation needs and develop an irrigation schedule.
16.02 Compare and select irrigation equipment and methods.
16.03 Install, operate, maintain, and repair irrigation equipment.

17.0 CONTROL PLANT PESTS--The student will be able to:

17.01 Identify common plant pests and their damages.
17.02 Describe life cycles of insects, pests, and diseases.
17.03 Identify the procedures and requirements for obtaining a restricted-use-pesticide operator's license.
17.04 Select, mix, and apply a nonrestricted chemical according to the label and local, state, federal, and EPA regulations.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.01 Demonstrate basic facility maintenance, installation, or repair.
18.02 Safely operate, maintain, service, and repair equipment.

19.0 DESCRIBE PROCEDURES FOR HARVESTING AND MARKETING PLANT MATERIALS--The student will be able to:

19.01 Determine maturity, condition, and volume of crops to be harvested.
19.02 Describe procedures for harvesting crops.
19.03 Determine kinds and types of storage facilities for crops.
19.04 Grade, treat, pack, and/or store harvested crop.
19.05 Interpret and analyze market information.
19.06 Compare, select, and locate marketing channels and develop a marketing program.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.01 Identify major sources of credit for agribusiness.
20.02 Complete a business loan application.
20.03 Explain the purposes and structures of contracts, leases, deeds, and insurance policies.

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.03 Identify appropriate work and personal habits. Level II.
21.04 Complete a job application.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Animal Production Technology

CODE NUMBER: Secondary ______ Postsecondary ______

Florida CIP 0102.020100

SECONDARY SCHOOL CREDITS ______ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): ______ 6-9 ______ 9-12 ______ Postsecondary Adult Vocational

X Postsecondary Vocational ______ Other ______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farm managers (71005507), livestock ranchers (410.161-018), general farm managers (180.167-018), laboratory technicians, (040.361-010), field-contact technicians (162.117-026), stock ranch supervisors (410.131-022), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to apply the theories, principles and application of appropriate technical skills that apply to the production and management of animals and animal products. Subject matter also includes selection, breeding, feeding, record keeping, diseases and parasites, forage production, construction and repair, equipment, laws and regulations, as well as leadership, employability, communication and human relations skills.

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, carpentry portable and power hand tools, arc welders, oxy-acetylene torches, tractors and field equipment, health maintenance instruments and animal restraint equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Select and breed livestock.
02. Determine nutritional requirements of livestock and manage feeding program.
03. Keep and analyze production, personnel and business records.
04. Prevent and control insects, diseases and parasites through a pest control management program.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

05. Construct, repair and maintain facilities.
06. Market livestock.
07. Manage pastures and forage crop production.
08. Interpret and apply technical information to management practices.
09. Observe and apply rules and regulations relative to the operation.
10. Determine sources and methods of financing the enterprise.
11. Analyze contracts, leases and other legal documents.
12. Purchase, operate and maintain equipment
13. Demonstrate leadership, communication, employability and human relations skills.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
SECONDARY NUMBER: ____________
PROGRAM TITLE: Animal Production Technology
POSTSECONDARY NUMBER: 0102.010100

01.0 SELECT AND BREED LIVESTOCK--The student will be able to:

01.01 Select livestock suited for particular enterprise (purebred breeding feeder, broiler, egg production).
01.02 Evaluate desirable conformation characteristics of livestock.
01.03 Identify anatomical parts of animals and explain their functions.
01.04 Select quality sires and dams.
01.05 Select and compare most desirable breeding method (artificial insemination, seasonal).
01.06 Detect animals in heat.
01.07 Develop breeding program and schedule.
01.08 Perform pregnancy test.
01.09 Aid livestock with parturition and postpartum problems.
01.10 Care for newborn livestock.

02.0 DETERMINE NUTRITIONAL REQUIREMENTS OF LIVESTOCK AND MANAGE FEEDING PROGRAM--The student will be able to:

02.01 Determine nutritional requirements for livestock.
02.02 Recognize quality feed materials.
02.03 Prepare a feeding schedule.
02.04 Determine mineral and feed supplement requirements.
02.05 Implant and administer growth stimulators.
02.06 Adjust and maintain self-feeders.
02.07 Interpret feed tag analyses.
02.08 Mix feed for livestock.
02.09 Feed livestock.
02.10 Balance a feed ration.

03.0 KEEP AND ANALYZE PRODUCTION, PERSONNEL AND BUSINESS RECORDS--The student will be able to:

03.01 Keep and analyze livestock production and performance records.
03.02 Keep fertilization and pesticide use records.
03.03 Keep equipment maintenance and service records.
03.04 Determine cost efficiency of operation.
03.05 Maintain labor and personnel records.
03.06 Prepare a farm tax return.
03.07 Prepare an annual budget.
03.08 Keep breed, vaccination and health certificates and records.
03.09 Determine credit, cash flow and investment returns.
03.10 Review sources and kinds of farm insurance.

04.0 PREVENT AND CONTROL INSECTS, DISEASES AND PARASITES THROUGH A PEST CONTROL MANAGEMENT PROGRAM--The student will be able to:

04.01 Identify and treat disorders associated with feeding (bloat, colic, green pasture, and mold).
04.02 Administer medication and vaccine by injection.
04.03 Treat livestock for internal and external parasites.
04.04 Administer medication orally.
04.05 Provide first aid for livestock.
04.06 Develop and manage a schedule of preventive medication.
04.07 Identify symptoms of stress in livestock.
04.08 Read and follow directions on pesticide labels and medication containers.
04.09 Castrate animals.
04.10 Restrain animals.

05.0 CONSTRUCT, REPAIR AND MAINTAIN FACILITIES--The student will be able to:

05.01 Safely operate and maintain general farm shop tools and equipment.
05.02 Install and maintain electrical wiring and equipment.
05.03 Square and build a farm structure.
05.04 Determine a bill of materials for a farm construction project.
05.05 Form and pour concrete.

05.06 Build and repair fences, gates and pens.
05.07 Develop a general maintenance schedule for facilities and equipment.

06.0 MARKET LIVESTOCK--The student will be able to:

06.01 Secure and interpret market information.
06.02 Select marketing channels for greatest profit.
06.03 Interpret elements of marketing agreements.
06.04 Market livestock.
06.05 Provide for transportation of product to market.
06.06 Determine yield and quality grade of livestock to be marketed.

07.0 MANAGE PASTURE AND FORAGE CROP PRODUCTION--The student will be able to:

07.01 Determine range and pasture quality.
07.02 Manage the control of noxious weeds.
07.03 Manage the preparation of soil for feed, pasture or forage crops.
07.04 Manage and supervise the planting and culture of feed or forage crops.
07.05 Manage and supervise the fertilization and irrigation of forage or feed crops.
07.06 Manage and supervise harvesting or cutting operation.
07.07 Store feed and forage crops.

08.0 INTERPRET AND APPLY TECHNICAL INFORMATION TO MANAGEMENT PRACTICES--The student will be able to:

08.01 Keep and maintain a file of current technical information from universities, governmental and commercial agencies.
08.02 Maintain a reference file for periodicals and other publications.
08.03 Attend seminars and workshops to update skills and knowledge.
08.04 Determine sources and advantages of using computer networking for up-to-date information.

09.0 OBSERVE AND APPLY RULES AND REGULATIONS RELATIVE TO THE OPERATION--The student will be able to:

09.01 List agencies responsible for inspecting and regulating operation or product.
09.02 Secure necessary inspection certificates and registrations.
09.03 Observe rules and regulations related to the production and marketing of livestock.
09.04 List agencies responsible for administering rules and regulations.

10.0 DETERMINE SOURCES AND METHODS OF FINANCING THE ENTERPRISE--The student will be able to:

10.01 List major sources of production credit.
10.02 List sources of credit for capital items and real estate.
10.03 Prepare a case using accepted forms for obtaining credit from farm lending institutions.

11.0 ANALYZE CONTRACTS, LEASES AND OTHER LEGAL DOCUMENTS--The student will be able to:

11.01 Develop a farm or ranch rental/lease agreement.
11.02 Analyze a marketing contract.
11.03 Contract for labor and services.
11.04 Develop a will for the transfer or disposal of property.
11.05 List sources of legal services.
11.06 Interpret a real estate legal description.

12.0 PURCHASE, OPERATE AND MAINTAIN EQUIPMENT--The student will be able to:

12.01 Assess needs for the purchase or lease of new or replacement equipment.
12.02 Manage and supervise the maintenance of tools and equipment.
12.03 Train employees in the safe operation and maintenance of equipment.

12.04 Develop a general equipment maintenance schedule.
12.05 Maintain an inventory of equipment, tools, spare parts and supplies.

13.0 DEMONSTRATE LEADERSHIP, COMMUNICATION, EMPLOYABILITY AND HUMAN RELATIONS SKILLS--The student will be able to:

13.01 Conduct a job search.
13.02 Secure information about a job.
13.03 Identify documents that may be required when applying for a job.
13.04 Complete a job application form correctly.
13.05 Demonstrate competence in job interview techniques.
13.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
13.07 Identify acceptable work habits.
13.08 Demonstrate knowledge of how to make job changes appropriately.
13.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK
PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION
EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Animal Products Processing

CODE NUMBER: Secondary 8109100 Postsecondary ANS0630

Florida CIP 0101.040200

SECONDARY SCHOOL CREDITS 3
COLLEGE CREDITS ______
POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): _____6-9 _____9-12 X Postsecondary Adult Vocational

______ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:			
	10-12,30,31	VOC AGRI @4 AG PRODUC @7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 AG PRODUC @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as slaughters and butchers (89802686), meat grinders (521.685-214), butchers, all-round (525.684-010), meat wrappers (920.587-018), skinners (525.684-046), boners, meat (525.684-010), meat dressers (525.664-010), meat cutters (316.684-018), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to slaughter, process and prepare meat for sale or distribution. Subject matter includes slaughtering, safety, hand and power tools, health and sanitation, display, packaging, grading, record keeping, legal regulations, and cutting, as well as leadership and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8109120	Animal Products Processing 2
8109130	Animal Products Processing 3

II. LABORATORY ACTIVITIES: Slaughtering and meats cutting laboratory activities are an integral part of this program including the safe use of mechanics' tools, carpentry hand and portable power tools, slaughtering equipment and tools, meat cutting tools and instruments, coolers and freezers.

III. SPECIAL NOTE: Future Farmers of America (secondary) and the National Postsecondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 450 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Slaughter beef and swine animals.
11. Observe safety precautions.
12. Use and maintain hand and power cutting tools.
13. Sanitize facilities and equipment.
14. Follow legal regulations.
15. Sell and display meats.
16. Package meats.
17. Cut, trim and slice beef, pork and veal.
18. Prepare ground meats.
19. Inspect and grade meat.
20. Keep records.
21. Demonstrate proficiency in applying basic mathematics, science and communication skills to agriculture problem solving.
22. Demonstrate employability skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture SECONDARY NUMBER: 8109100
PROGRAM TITLE: Animal Products Processing POSTSECONDARY NUMBER: ANS0630

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 SLAUGHTER BEEF AND SWINE ANIMALS--The student will be able to:

10.01 Humanely immobilize or stun beef and swine.
10.02 Stick or bleed animal.
10.03 Remove hide from beef cattle.
10.04 Trim carcass.
10.05 Remove paunch, intestines, liver, spleen and stomach.
10.06 Split carcass into halves.
10.07 Remove bone dust in sternum and vertebrae.
10.08 Weigh carcass.
10.09 Scald swine.

10.10 Dehair swine.
10.11 Singe hog.

11.0 OBSERVE SAFETY PRECAUTIONS--The student will be able to:

11.01 Apply first aid to minor cuts, bruises and burns.
11.02 Follow safe work habits.
11.03 Identify potential safety hazards.
11.04 Wear appropriate protective clothing.
11.05 Use proper lifting and carrying methods.
11.06 Adjust safety shields and devices.
11.07 Remove debris from work area.
11.08 Handle live cattle and swine in a safe manner.

12.0 USE AND MAINTAIN HAND AND POWER CUTTING TOOLS--The student will be able to:

12.01 Use power tools and equipment safely.
12.02 Use hand tools safely.
12.03 Use electric hand saws.
12.04 Identify tools and equipment.
12.05 Adjust tools and equipment.
12.06 Select and use appropriate tools and equipment.
12.07 Sharpen tools.
12.08 Clean tools.
12.09 Use scales.
12.10 Use knives and cleavers.
12.11 Repair tools and equipment.

13.0 SANITIZE FACILITIES AND EQUIPMENT--The student will be able to:

13.01 Identify personal sanitation practices.
13.02 Clean and sanitize hand and power meat cutting tools.
13.03 Describe the influence sanitary conditions may have on meat spoilage.
13.04 Clean and sanitize floors, ceilings and walls in cutting room and cooler.
13.05 Clean and sanitize racks and counters in cutting room and cooler.

14.0 FOLLOW LEGAL REGULATIONS--The student will be able to:

14.01 Identify sanitation requirements for licensing.
14.02 Display appropriate inspection certificates.
14.03 Interpret local, state and federal inspection requirements.
14.04 Interpret meat marketing regulations.
14.05 Identify agencies regulating the industry.

15.0 SELL AND DISPLAY MEATS--The student will be able to:

15.01 Identify various meat items to customers.
15.02 Label meat in display cases.
15.03 Price various cuts of meat for customers.
15.04 Take orders by telephone.
15.05 Stock meat displays.
15.06 Interpret customer's orders for various cuts.
15.07 Control temperature in storage areas.
15.08 Determine freezer storage life of various meats.

16.0 PACKAGE MEATS--The student will be able to:

16.01 Select appropriate wrapping materials.
16.02 Weigh meats for packaging.
16.03 Wrap meats for customers' home freezers.
16.04 Wrap and re-wrap packages for self-service.

17.0 CUT, TRIM AND SLICE, BEEF, PORK AND VEAL--The student will be able to:

17.01 Identify primal beef and pork cuts.
17.02 Bone beef and pork.
17.03 Break beef forequarter and hindquarter.
17.04 Identify retail and wholesale cuts of beef.
17.05 Cut wholesale and retail beef and pork cuts.
17.06 Trim cuts.
17.07 Identify retail and wholesale cuts pork and beef.
17.08 Slice ham.

18.0 PREPARE GROUND MEATS--The student will be able to:

18.01 Grind meats.
18.02 Identify pork meats to be used for ground ham loaf.
18.03 Select beef meats to be used for ground beef.
18.04 Select pork meats to be used for sausage.

19.0 INSPECT AND GRADE MEAT--The student will be able to:

19.01 Recognize signs of meat spoilage.
19.02 Grade meat carcasses.
19.03 Describe the influence grade has on preparation procedures and retail price.
19.04 Describe the various characteristics which determine grade.

20.0 KEEP RECORDS--The student will be able to:

20.01 Take inventory.
20.02 File information.
20.03 Keep sanitation and inspection records.
20.04 Order supplies.
20.05 Keep personnel records.
20.06 Maintain market information.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.01 Solve time, distance, area, and volume problems.
21.02 Solve ratio, proportion, and percentage problems.
21.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
21.04 Identify basic concepts of physics in agricultural applications.
21.05 Identify basic concepts of chemistry in agricultural applications.
21.06 Identify basic biological concepts in agricultural applications.
21.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
21.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
21.09 Demonstrate the scientific method in agricultural problem solving.

22.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

22.01 Conduct a job search.
22.02 Secure information about a job.
22.03 Identify documents that may be required when applying for a job.
22.04 Complete a job application form correctly.
22.05 Demonstrate competence in job interview techniques.
22.06 Identify or demonstrate appropriate responses to criticism for employer, supervisor, or other persons.
22.07 Demonstrate knowledge of how to make job changes appropriately.
22.08 Demonstrate acceptable employee health habits.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — COURSE CREDIT: 1

PROGRAM TITLE: Animal Products Processing — PROGRAM NUMBER: 8109100

COURSE TITLE: Agriscience Foundations — COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — COURSE CREDIT: 1

PROGRAM TITLE: Animal Products Processing — PROGRAM NUMBER: 8109100

COURSE TITLE: Animal Products Processing 2 — COURSE NUMBER: 8109120

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of safety, regulations, sanitation, packaging, use and maintenance of meat cutting equipment, slaughtering and employability skills.

10.0 SLAUGHTER BEEF AND SWINE ANIMALS--The student will be able to:

10.01 Humanely immobilize or stun beef and swine.
10.02 Stick or bleed animal.
10.03 Remove hide from beef cattle.
10.04 Trim carcass.
10.05 Remove paunch, intestines, liver, spleen and stomach.
10.06 Split carcass into halves.
10.07 Remove bone dust in sternum and vertebrae.
10.08 Weigh carcass.
10.09 Scald swine.
10.10 Dehair swine.
10.11 Singe hog.

11.0 OBSERVE SAFETY PRECAUTIONS--The student will be able to:

11.01 Apply first aid to minor cuts, bruises and burns.
11.02 Follow safe work habits.
11.03 Identify potential safety hazards.
11.04 Wear appropriate protective clothing.
11.05 Use proper lifting and carrying methods.
11.06 Adjust safety shields and devices.
11.07 Remove debris from work area.
11.08 Handle live cattle and swine in a safe manner.

12.0 USE AND MAINTAIN HAND AND POWER CUTTING TOOLS--The student will be able to:

12.01 Use power tools and equipment safely.
12.02 Use hand tools safely.
12.03 Use electric hand saws.
12.04 Identify tools and equipment.
12.05 Adjust tools and equipment.
12.06 Select and use appropriate tools and equipment.
12.07 Sharpen tools.
12.08 Clean tools.
12.09 Use scales.
12.10 Use knives and cleavers.
12.11 Repair tools and equipment.

13.0 SANITIZE FACILITIES AND EQUIPMENT--The student will be able to:

13.01 Identify personal sanitation practices.
13.02 Clean and sanitize hand and power meat cutting tools.
13.03 Describe the influence sanitary conditions may have on meat spoilage.
13.04 Clean and sanitize floors, ceilings and walls in cutting room and cooler.
13.05 Clean and sanitize racks and counters in cutting room and cooler.

14.0 FOLLOW LEGAL REGULATIONS--The student will be able to:

14.01 Identify sanitation requirements for licensing.
14.02 Display appropriate inspection certificates.
14.03 Interpret local, state and federal inspection requirements.
14.04 Interpret meat marketing regulations.
14.05 Identify agencies regulating the industry.

16.0 PACKAGE MEATS--The student will be able to:

16.01 Select appropriate wrapping materials.
16.02 Weigh meats for packaging.
16.03 Wrap meats for customers' home freezers.
16.04 Wrap and re-wrap packages for self-service.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.01 Solve time, distance, area, and volume problems.
21.02 Solve ratio, proportion, and percentage problems.
21.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
21.04 Identify basic concepts of physics in agricultural applications.
21.05 Identify basic concepts of chemistry in agricultural applications.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Animal Products Processing
PROGRAM NUMBER: 8109100

COURSE TITLE: Animal Products Processing 3
COURSE NUMBER: 8109130

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of grading meats and carcasses, cutting and trimming meat, grinding, record keeping, sales, display, and employability skills.

15.0 SELL AND DISPLAY MEATS--The student will be able to:

15.01 Identify various meat items to customers.
15.02 Label meat in display cases.
15.03 Price various cuts of meat for customers.
15.04 Take orders by telephone.
15.05 Stock meat displays.
15.06 Interpret customer's orders for various cuts.
15.07 Control temperature in storage areas.
15.08 Determine freezer storage life of various meats.

17.0 CUT, TRIM AND SLICE, BEEF, PORK AND VEAL--The student will be able to:

17.01 Identify primal beef and pork cuts.
17.02 Bone beef and pork.
17.03 Break beef forequarter and hindquarter.
17.04 Identify retail and wholesale cuts of beef.
17.05 Cut wholesale and retail beef and pork cuts.
17.06 Trim cuts.
17.07 Identify retail and wholesale cuts pork and beef.
17.08 Slice ham.

18.0 PREPARE GROUND MEATS--The student will be able to:

18.01 Grind meats.
18.02 Identify pork meats to be used for ground ham loaf.
18.03 Select beef meats to be used for ground beef.
18.04 Select pork meats to be used for sausage.

19.0 INSPECT AND GRADE MEAT--The student will be able to:

19.01 Recognize signs of meat spoilage.
19.02 Grade meat carcasses.
19.03 Describe the influence grade has on preparation procedures and retail price.
19.04 Describe the various characteristics which determine grade.

20.0 KEEP RECORDS--The student will be able to:

20.01 Take inventory.
20.02 File information.
20.03 Keep sanitation and inspection records.
20.04 Order supplies.
20.05 Keep personnel records.
20.06 Maintain market information.

21.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

21.06 Identify basic biological concepts in agricultural applications.
21.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
21.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
21.09 Demonstrate the scientific method in agricultural problem solving.

22.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

22.01 Conduct a job search.
22.02 Secure information about a job.
22.03 Identify documents that may be required when applying for a job.
22.04 Complete a job application form correctly.
22.05 Demonstrate competence in job interview techniques.
22.06 Identify or demonstrate appropriate responses to criticism for employer, supervisor, or other persons.
22.07 Demonstrate knowledge of how to make job changes appropriately.
22.08 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Animal Science

CODE NUMBER: Secondary 8106100 — Postsecondary ____

Florida CIP 0101.030200

SECONDARY SCHOOL CREDITS 3 — COLLEGE CREDITS ____ — POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____ 7-9 ____ 9-12 ____ Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE: VOC AGRI @4
AGRI @4 AGRICULTUR 1 2
AGRI PROD #7

1. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farmworkers, poultry (411.584-010), farmworkers, livestock (410.684-010), or livestock-yard attendants (410.674-018), or to provide supplemental training for persons previously or currently employed in these occupations.

This program is a standard core for the following advanced agricultural programs: Dairy Production, Livestock Production, and Small and Large Animal Services.

The content includes, but is not limited to, instruction that prepares individuals to work in enterprises concerned with the selection, breeding, nutrition, health, housing, feeding and marketing of animals such as dairy cattle, beef cattle, horses, swine, poultry, rabbits and other livestock, record keeping, machinery operation and maintenance as well as employability, communication and human relations skills.

Listed below are the courses that comprise the program when offered at the secondary level:

8106810	Agriscience Foundations
8106120	Animal Science 1
8106130	Animal Science 2

II. LABORATORY ACTIVITIES: Agricultural shop, forage crop and livestock laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, animal health instruments, animal grooming equipment, animal restraint equipment, tractors and field equipment and chemical applicators.

III. SPECIAL NOTE: FFA is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

Because of the production and marketing cycle of the livestock industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

III. SPECIAL NOTE: Continued

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the animal science industry.
11. Apply approved nutritional and animal health practices.
12. Groom, exhibit and market animals.
13. Maintain equipment and facilities.
14. Operate, maintain, and repair machinery and equipment.
15. Maintain and analyze records.
16. Follow safety precautions.
17. Control parasites and diseases of animals.
18. Perform emergency first aid.
19. Identify, select and breed animals.
20. Plan routine management of animals and facilities.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
SECONDARY NUMBER: 8106100
PROGRAM TITLE: Animal Science
POSTSECONDARY NUMBER:

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.
11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.06 Measure and add medication to feed as prescribed.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.
11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.07 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.
12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.
14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.
15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.

15.06 Analyze records to determine efficiency of operation.
15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.
19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.
20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.
20.06 Implement and maintain sanitary conditions for animals including young.

20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Animal Science	PROGRAM NUMBER:	8106100
COURSE TITLE:	Agriscience Foundations	COURSE NUMBER:	8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Animal Science	PROGRAM NUMBER:	8106100
COURSE TITLE:	Animal Science 1	COURSE NUMBER:	8106120

COURSE DESCRIPTION:

The purpose of this course is to provide competencies in the areas of history, animal nutrition, health, grooming, showing, marketing, facilities and equipment maintenance, operation and repair of machinery, safety, parasite and disease control, animal first aid, and breed identification and selection.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.
11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.07 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Animal Science	PROGRAM NUMBER:	8106100
COURSE TITLE:	Animal Science 2	COURSE NUMBER:	8106130

COURSE DESCRIPTION:

The purpose of this course is to provide competency in the areas of animal nutrition and health, grooming, exhibiting and marketing, operation and maintenance of machinery, record keeping, safety, parasite and disease control, first aid, and management.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.06 Measure and add medication to feed as prescribed.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.

ANIMAL SCIENCE 2 - Continued

11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.
15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.
15.06 Analyze records to determine efficiency of operation.
15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.
20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.

20.06 Implement and maintain sanitary conditions for animals including young.
20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Citrus Production

CODE NUMBER: Secondary 8106300 — Postsecondary FRC0240

Florida CIP 0101.030402

SECONDARY SCHOOL CREDITS 6 — COLLEGE CREDITS _____ — POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): _____6-9 ____-12 X Postsecondary Adult Vocational

_____ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:	10-12,30,31	VOC AGRI @4 AGRI @4	AGRI PROD # 7 AGRICULTUR 1 2
	30,31	VOC AGRI @4 AGRI @2 @4	AGRI PROD @7 G AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farmers, tree-fruit-and-nut crops (403.161-010), farm machine operators (409.683-010), farm workers, fruit I (403.683-010), farm workers, fruit II (403.687-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to work in enterprises concerned with the production, marketing and harvesting of citrus nursery stock and fruit. Subject matter also includes soils, plant nutrition, citrus identification, mechanics, diseases and insects, as well as record keeping, employability, communication and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8106820	Agritechnology 1
8106830	Agritechnology 2
8106340	Citrus Production 4
8106350	Citrus Production 5
8106360	Citrus Production 6

II. LABORATORY ACTIVITIES: Agricultural shop, laboratory and citrus land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, portable power tools, arc welders, oxy-acetylene torches, tractors and field equipment, power chemical applicators, fruit quality test instruments and harvest equipment.

III. SPECIAL NOTE: FFA (secondary) and the National Postsecondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

Because of the production and marketing cycle of the citrus industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

III. SPECIAL NOTE: Continued

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed. In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

Intended outcomes 11, 12, and 13 in the Agritechnology core (8106800) have been deleted from this program as inappropriate.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Explore the scope of the agriscience industry.
◆ 11. Provide for proper animal health and nutrition.
◆ 12. Identify procedures in animal production and reproduction.
◆ 13. Use procedures for exhibiting and marketing animals.
14. Compare, select, and use plant-production systems.
15. Fertilize plants and crops.
16. Irrigate plants and crops.
17. Control plant pests.
18. Operate, maintain, and service facilities, tools, and equipment.
19. Describe procedures for harvesting and marketing plant materials.
20. Apply principles of agribusiness finance.
21. Demonstrate leadership, employability, communication, and human-relations skills.
22. Control weeds, insects, diseases and other pathogens of citrus.
23. Protect citrus from frost and freeze damage.
24. Irrigate citrus.
25. Harvest and market citrus.
26. Identify and select varieties of rootstocks and scions.
27. Prune and hedge citrus.
28. Propagate citrus.
29. Keep production and financial records.

CITRUS PRODUCTION - Continued

30. Observe laws and regulations regarding citrus and citrus chemicals.
31. Demonstrate proficiency in applying basic mathematics, science and communications skills to agriculture problem solving.

Note--Daggers (♦) indicate core outcomes not appropriate for Citrus Production.

CF/11/07/91

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8106300

PROGRAM TITLE: Citrus Production POSTSECONDARY NUMBER: FRC0240

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

- 10.01 Investigate career opportunities in agriscience industries. Levels I & II.
- 10.02 Describe training requirements for entry and advancement in agriscience careers. Levels I & II.
- 10.03 Identify professional organizations and trade journals in the agriscience industry.

11.0 PROVIDE FOR PROPER ANIMAL HEALTH AND NUTRITION--The student will be able to:

NOTE--This outcome is not appropriate for Citrus Production

12.0 IDENTIFY PROCEDURES IN ANIMAL PRODUCTION AND REPRODUCTION--The student will be able to:

NOTE--This outcome is not appropriate for Citrus Production

13.0 USE PROCEDURES FOR EXHIBITING AND MARKETING ANIMALS--The student will be able to:

NOTE--This outcome is not appropriate for Citrus Production

14.0 COMPARE, SELECT, AND USE PLANT PRODUCTION SYSTEMS--The student will be able to:

- 14.01 Compare different plant production systems.
- 14.02 Propagate, grow, and transplant plants.
- 14.03 Identify varieties of local commercial plants and field crops.
- 14.04 Select and prepare site and seed bed for planting.
- 14.05 Identify methods of pruning plants to achieve desired growth and to maintain health.
- 14.06 Calculate planting rate and spacing; solve time, distance, area, and volume problems in agriscience.
- 14.07 Operate and adjust planting equipment.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

- 15.01 Develop fertilization schedules and calculate fertilizer rates for plants; solve time, distance, area, and volume problems in agriscience.
- 15.02 Identify common nutrient-deficiency symptoms in plants.
- 15.03 Calibrate fertilization equipment and fertilize plants; solve time, distance, area, and volume problems in agriscience.
- 15.04 Interpret information on a fertilizer label.
- 15.05 Compare sources and forms of nutrients.
- 15.06 Determine methods of applying fertilizer materials.

16.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

- 16.01 Recognize soil and plant conditions indicating irrigation needs and develop an irrigation schedule.
- 16.02 Compare and select irrigation equipment and methods.
- 16.03 Install, operate, maintain, and repair irrigation equipment.

17.0 CONTROL PLANT PESTS--The student will be able to:

- 17.01 Identify common plant pests and their damages.
- 17.02 Describe life cycles of insects, pests, and diseases.
- 17.03 Identify the procedures and requirements for obtaining a restricted-use-pesticide operator's license.
- 17.04 Select, mix, and apply a nonrestricted chemical according to the label and local, state, federal and EPA regulations.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

- 18.01 Demonstrate basic facility maintenance, installation, or repair.
- 18.02 Safely operate, maintain, service, and repair equipment.
- 18.03 Use and maintain hand tools and power equipment (e.g., power saws, welders).
- 18.04 Maintain and service small gasoline engines.

19.0 DESCRIBE PROCEDURES FOR HARVESTING AND MARKETING PLANT MATERIALS--The student will be able to:

19.01 Determine maturity, condition, and volume of crops to be harvested.
19.02 Describe procedures for harvesting crops.
19.03 Determine kinds and types of storage facilities for crops.
19.04 Grade, treat, pack, and/or store harvested crop.
19.05 Interpret and analyze market information.
19.06 Compare, select, and locate marketing channels and develop a marketing program.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.01 Identify major sources of credit for agribusiness.
20.02 Complete a business loan application.
20.03 Explain the purposes and structures of contracts, leases, deeds, and insurance policies.
20.04 Maintain and interpret supervised agricultural experience (SAE) records (e.g., depreciation, inventory, budgets).

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.01 Conduct group meetings using parliamentary procedure and public-speaking skills.
21.02 Identify appropriate work and personal habits. Level I.
21.03 Identify appropriate work and personal habits. Level II.
21.04 Complete a job application.

22.0 CONTROL WEEDS, INSECTS, DISEASES, AND OTHER PATHOGENS OF CITRUS--The student will be able to:

22.01 Identify noxious weeds and vines of citrus.
22.02 Clean and maintain herbicide applicator.
22.03 Demonstrate safety precautions.
22.04 Identify insects, diseases and other pathogens of citrus.
22.05 Demonstrate the safe use of pesticides, protective clothing and respiration equipment.
22.06 Safely dispose of pesticide containers.
22.07 Clean and maintain pesticide applicators.
22.08 Observe and maintain grove and nursery sanitation practices.

23.0 PROTECT CITRUS FROM FROST AND FREEZE DAMAGE--The student will be able to:

23.01 Monitor local agricultural weather forecasts.
23.02 Prepare and maintain grove or nursery cold protection equipment.
23.03 Operate grove and nursery cold protection equipment.
23.04 Protect young citrus trees from freeze by banking with soil or other protective devices.
23.05 Monitor field recording thermometer.

24.0 IRRIGATE CITRUS--The student will be able to:

24.01 Operate and maintain low volume irrigation system.
24.02 Operate, adjust and maintain volume gun and other portable irrigation equipment.
24.03 Repair and maintain permanent overhead grove irrigation system.
24.04 Operate and service electric and engine driven pumps.
24.05 Keep irrigation records.

25.0 HARVEST AND MARKET CITRUS--The student will be able to:

25.01 Determine quality of fruit for fresh fruit market.
25.02 Monitor harvesting operations.
25.03 Keep harvest records.

26.0 IDENTIFY AND SELECT VARIETIES OF ROOTSTOCKS AND SCIONS--The student will be able to:

26.01 Identify citrus fruit varieties by color, shape, texture and seeds.
26.02 Identify rootstock varieties.

26.03 Select rootstock varieties best suited for specific soil types, disease resistance and scion compatibility.
26.04 Select scion varieties best suited for specific soil types, rootstock compatibility, disease resistance, insect resistance, cold resistance and for specific marketing purposes.

27.0 PRUNE AND HEDGE CITRUS--The student will be able to:

27.01 Hand prune mature citrus trees.
27.02 Prune nursery trees.
27.03 Prune freeze damaged citrus trees.
27.04 Determine appropriate time and method for hedging and topping mature citrus trees.

28.0 PROPAGATE CITRUS--The student will be able to:

28.01 Collect soil and/or plant tissue samples for analysis.
28.02 Prepare seed and plant.
28.03 Grow and maintain seedlings.
28.04 Select and cut certified budwood.
28.05 Bud and wrap seedlings.
28.06 Grow and maintain young budded nursery stock.
28.07 Dig nursery stock for potting or prepare for bareroot shipment.
28.08 Maintain nursery sanitation practices.

29.0 KEEP PRODUCTION AND FINANCIAL RECORDS--The student will be able to:

29.01 Keep fertilizer and pesticide application records.
29.02 Make grove plats.
29.03 Keep equipment maintenance and service records.
29.04 Record production information
29.05 Determine cost and effectiveness of cultural and management practices.
29.06 Record labor and personnel information.

30.0 OBSERVE LAWS AND REGULATIONS REGARDING CITRUS AND CITRUS CHEMICALS--The student will be able to:

30.01 Be familiar with laws regulating the movement of citrus trees and citrus fruit.
30.02 Observe nursery site regulations.
30.03 Know and observe quality control regulations.
30.04 Be familiar with state and federal agencies regulating the citrus industry.

31.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

31.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
31.02 Identify basic concepts of physics in agricultural applications.
31.03 Identify basic concepts of chemistry in agricultural applications.
31.04 Identify basic biological concepts in agricultural applications.
31.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
31.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

26.03 Select rootstock varieties best suited for specific soil types, disease resistance and scion compatibility.
26.04 Select scion varieties best suited for specific soil types, rootstock compatibility, disease resistance, insect resistance, cold resistance and for specific marketing purposes.

27.0 PRUNE AND HEDGE CITRUS--The student will be able to:

27.01 Hand prune mature citrus trees.
27.02 Prune nursery trees.
27.03 Prune freeze damaged citrus trees.
27.04 Determine appropriate time and method for hedging and topping mature citrus trees.

28.0 PROPAGATE CITRUS--The student will be able to:

28.01 Collect soil and/or plant tissue samples for analysis.
28.02 Prepare seed and plant.
28.03 Grow and maintain seedlings.
28.04 Select and cut certified budwood.
28.05 Bud and wrap seedlings.
28.06 Grow and maintain young budded nursery stock.
28.07 Dig nursery stock for potting or prepare for bareroot shipment.
28.08 Maintain nursery sanitation practices.

29.0 KEEP PRODUCTION AND FINANCIAL RECORDS--The student will be able to:

29.01 Keep fertilizer and pesticide application records.
29.02 Make grove plats.
29.03 Keep equipment maintenance and service records.
29.04 Record production information
29.05 Determine cost and effectiveness of cultural and management practices.
29.06 Record labor and personnel information.

30.0 OBSERVE LAWS AND REGULATIONS REGARDING CITRUS AND CITRUS CHEMICALS--The student will be able to:

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30.02 Observe nursery site regulations.
30.03 Know and observe quality control regulations.
30.04 Be familiar with state and federal agencies regulating the citrus industry.

31.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

31.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
31.02 Identify basic concepts of physics in agricultural applications.
31.03 Identify basic concepts of chemistry in agricultural applications.
31.04 Identify basic biological concepts in agricultural applications.
31.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
31.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

STUDENT PERFORMANCE STANDARDS | EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture | COURSE CREDIT: 1

PROGRAM TITLE: Citrus Production | PROGRAM NUMBER: 8106300

COURSE TITLE: Agriscience Foundations | COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

AGRISCIENCE FOUNDATIONS - Continued

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — COURSE CREDIT: 1

PROGRAM TITLE: Citrus Production — PROGRAM NUMBER: 8106300

COURSE TITLE: Agritechnology 1 — COURSE NUMBER: 8106820

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of agriscience industry careers; prevention and treatment of livestock diseases; livestock anatomy; wholesale cuts of meat; animal reproduction and identification; animal safety; animal-health certification; plant growth; plant fertilization; safe use of pesticides; maintenance of tools and equipment; record keeping; and employability skills.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Level I.
10.02 Describe training requirements for entry and advancement in agriscience careers. Level I.

14.0 COMPARE, SELECT, AND USE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.01 Compare different plant production systems.
14.02 Propagate, grow, and transplant plants.
14.04 Select and prepare site and seed bed for planting.
14.05 Identify methods of pruning plants to achieve desired growth and to maintain health.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.04 Interpret information on a fertilizer label.
15.05 Compare sources and forms of nutrients.
15.06 Determine methods of applying fertilizer materials.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.03 Use and maintain hand tools and power equipment (e.g., power saws, welders).
18.04 Maintain and service small gasoline engines.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.04 Maintain and interpret supervised agricultural experience (SAE) records (e.g., depreciation, inventory, budgets).

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.01 Conduct group meetings using parliamentary procedure and public-speaking skills.
21.02 Identify appropriate work and personal habits. Level I.

STUDENT PERFORMANCE STANDARDS   EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture   COURSE CREDIT: 1

PROGRAM TITLE: Citrus Production   PROGRAM NUMBER: 8106300

COURSE TITLE: Agritechnology 2   COURSE NUMBER: 8106830

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of job and training requirements; professional organizations; application of medications to livestock; animal nutrition; feeds and feeding; marketing livestock; crop identification; planting crops; fertilizer calculations and application; irrigation; pest control; harvesting, packing, and grading crops, safe equipment operation; finance; and employability skills.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Level II.
10.02 Describe training requirements for entry and advancement in agriscience careers. Level II.
10.03 Identify professional organizations and trade journals in the agriscience industry.

14.0 COMPARE, SELECT, AND UTILIZE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.03 Identify varieties of local commercial plants and field crops.
14.06 Calculate planting rate and spacing; solve time, distance, area, and volume problems in agriscience.
14.07 Operate and adjust planting equipment.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.01 Develop fertilization schedules and calculate fertilizer rates for plants; solve time, distance, area, and volume problems in agriscience.
15.02 Identify common nutrient-deficiency symptoms in plants.
15.03 Calibrate fertilization equipment and fertilize plants; solve time, distance, area, and volume problems in agriscience.

16.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

16.01 Recognize soil and plant conditions indicating irrigation needs and develop an irrigation schedule.
16.02 Compare and select irrigation equipment and methods.
16.03 Install, operate, maintain, and repair irrigation equipment.

17.0 CONTROL PLANT PESTS--The student will be able to:

17.01 Identify common plant pests and their damages.
17.02 Describe life cycles of insects, pests, and diseases.
17.03 Identify the procedures and requirements for obtaining a restricted-use-pesticide operator's license.
17.04 Select, mix, and apply a nonrestricted chemical according to the label and local, state, federal, and EPA regulations.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.01 Demonstrate basic facility maintenance, installation, or repair.
18.02 Safely operate, maintain, service, and repair equipment.

19.0 DESCRIBE PROCEDURES FOR HARVESTING AND MARKETING PLANT MATERIALS--The student will be able to:

19.01 Determine maturity, condition, and volume of crops to be harvested.
19.02 Describe procedures for harvesting crops.
19.03 Determine kinds and types of storage facilities for crops.
19.04 Grade, treat, pack, and/or store harvested crop.

19.05 Interpret and analyze market information.
19.06 Compare, select, and locate marketing channels and develop a marketing program.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.01 Identify major sources of credit for agribusiness.
20.02 Complete a business loan application.
20.03 Explain the purposes and structures of contracts, leases, deeds, and insurance policies.

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.03 Identify appropriate work and personal habits. Level II.
21.04 Complete a job application.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture COURSE CREDIT: 1

PROGRAM TITLE: Citrus Production PROGRAM NUMBER: 8106300

COURSE TITLE: Citrus Production 4 COURSE NUMBER: 8106340

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of identification and selection of citrus rootstock and scions, cold protection, citrus propagation, record keeping, laws and regulations affecting citrus production and problem solving.

23.0 PROTECT CITRUS FROM FROST AND FREEZE DAMAGE--The student will be able to:

23.01 Monitor local agricultural weather forecasts.
23.02 Prepare and maintain grove or nursery cold protection equipment.
23.03 Operate grove and nursery cold protection equipment.
23.04 Protect young citrus trees from freeze by banking with soil or other protective devices.
23.05 Monitor field recording thermometer.

26.0 IDENTIFY AND SELECT VARIETIES OF ROOTSTOCKS AND SCIONS--The student will be able to:

26.01 Identify citrus fruit varieties by color, shape, texture and seeds.
26.02 Identify rootstock varieties.
26.03 Select rootstock varieties best suited for specific soil types, disease resistance and scion compatibility.
26.04 Select scion varieties best suited for specific soil types, rootstock compatibility, disease resistance, insect resistance, cold resistance and for specific marketing purposes.

28.0 PROPAGATE CITRUS--The student will be able to:

28.01 Collect soil and/or plant tissue samples for analysis.
28.02 Prepare seed and plant.
28.03 Grow and maintain seedlings.

29.0 KEEP PRODUCTION AND FINANCIAL RECORDS--The student will be able to:

29.03 Keep equipment maintenance and service records.
29.06 Record labor and personnel information.

30.0 OBSERVE LAWS AND REGULATIONS REGARDING CITRUS AND CITRUS CHEMICALS--The student will be able to:

30.03 Know and observe quality control regulations.

31.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

31.04 Identify basic biological concepts in agricultural applications.
31.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Citrus Production	PROGRAM NUMBER:	8106300
COURSE TITLE:	Citrus Production 5	COURSE NUMBER:	8106350

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of week, insects, disease and other pathogen control in citrus, irrigation, record keeping, citrus propagation and problem solving.

22.0 CONTROL WEEDS, INSECTS, DISEASES, AND OTHER PATHOGENS OF CITRUS--The student will be able to:

22.01 Identify noxious weeds and vines of citrus.
22.02 Clean and maintain herbicide applicator.
22.03 Demonstrate safety precautions.
22.04 Identify insects, diseases and other pathogens of citrus.
22.05 Demonstrate the safe use of pesticides, protective clothing and respiration equipment.
22.06 Safely dispose of pesticide containers.
22.07 Clean and maintain pesticide applicators.
22.08 Observe and maintain grove and nursery sanitation practices.

24.0 IRRIGATE CITRUS--The student will be able to:

24.01 Operate and maintain low volume irrigation system.
24.02 Operate, adjust and maintain volume gun and other portable irrigation equipment.
24.03 Repair and maintain permanent overhead grove irrigation system.
24.04 Operate and service electric and engine driven pumps.
24.05 Keep irrigation records.

28.0 PROPAGATE CITRUS--The student will be able to:

28.04 Select and cut certified budwood.
28.05 Bud and wrap seedlings.
28.06 Grow and maintain young budded nursery stock.
28.07 Dig nursery stock for potting or prepare for bareroot shipment.
28.08 Maintain nursery sanitation practices.

29.0 KEEP PRODUCTION AND FINANCIAL RECORDS--The student will be able to:

29.01 Keep fertilizer and pesticide application records.
29.02 Make grove plats.

31.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

31.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Citrus Production PROGRAM NUMBER: 8106300
COURSE TITLE: Citrus Production 6 COURSE NUMBER: 8106360

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of pruning and hedging citrus, harvesting, marketing, record keeping, laws and regulations and problem solving.

25.0 HARVEST AND MARKET CITRUS--The student will be able to:

- 25.01 Determine quality of fruit for fresh fruit market.
- 25.02 Monitor harvesting operations.
- 25.03 Keep harvest records.

27.0 PRUNE AND HEDGE CITRUS--The student will be able to:

- 27.01 Hand prune mature citrus trees.
- 27.02 Prune nursery trees.
- 27.03 Prune freeze damaged citrus trees.
- 27.04 Determine appropriate time and method for hedging and topping mature citrus trees.

29.0 KEEP PRODUCTION AND FINANCIAL RECORDS--The student will be able to:

- 29.04 Record production information
- 29.05 Determine cost and effectiveness of cultural and management practices.

30.0 OBSERVE LAWS AND REGULATIONS REGARDING CITRUS AND CITRUS CHEMICALS--The student will be able to:

- 30.01 Be familiar with laws regulating the movement of citrus trees and citrus fruit.
- 30.02 Observe nursery site regulations.
- 30.03 Know and observe quality control regulations.
- 30.04 Be familiar with state and federal agencies regulating the citrus industry.

31.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

- 31.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
- 31.02 Identify basic concepts of physics in agricultural applications.
- 31.03 Identify basic concepts of chemistry in agricultural applications.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Citrus Production Technology

CODE NUMBER: Secondary _______ Postsecondary _______

Florida CIP 0102.040300

SECONDARY SCHOOL CREDITS _______ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS _______

APPLICABLE LEVEL(S): _____6-9 _____9-12 _____Postsecondary Adult Vocational

X Postsecondary Vocational _____ Other _______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farmers, tree fruit (403.161-010), managers, production (180.161-010), buyers (162.157-018), inspectors, agricultural commodities (168.287-010), biological aides (049.384-010), superintendents, production (180.167-958), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to produce citrus trees, fruit and manage services associated with citrus production. Subject matter includes pest control, propagation, nutrition, irrigation, equipment management and marketing, as well as leadership, communication, employability and human relations skills.

II. LABORATORY ACTIVITIES: Citrus laboratory and field activities are an integral part of this program including the safe use of mechanics' hand tools, tractors and field equipment, quality control test instruments, chemical applicators, irrigation equipment and power sprayers.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Classify and select citrus scions and rootstocks.
02. Identify varieties of citrus.
03. Manage the propagation of citrus trees.
04. Analyze nutritional disorders and develop a fertilization program.
05. Identify insects, diseases and other pathogens of citrus and develop a pest control management program.
06. Identify and control citrus weed problems.
07. Protect citrus from frost and freeze damage.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to: Continued

08. Calculate the irrigation requirements of citrus and manage an irrigation program.
09. Select, manage and maintain citrus production equipment.
10. Determine maturity and quality of citrus fruits.
11. Keep production, financial, personnel and maintenance records.
12. Market citrus nursery and grove products.
13. Manage the growth and culture of citrus trees.
14. Harvest citrus.
15. Interpret and incorporate technical information into management practices.
16. Demonstrate leadership, employability, communications and human relations skills.

STUDENT PERFORMANCE STANDARDS   EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture   SECONDARY NUMBER: ____________
PROGRAM TITLE: Citrus Production Technology   POSTSECONDARY NUMBER: 0102.040300

01.0 CLASSIFY AND SELECT CITRUS SCIONS AND ROOTSTOCKS--The student will be able to:

01.01 Classify citrus rootstocks and scions according to taxonomy.
01.02 Select scion varieties best suited for specific soil types, rootstock compatibility, disease resistance, insect resistance, cold resistance and specific marketing purposes.
01.03 Select rootstocks best suited for specific soil types, scion compatibility, nematode resistance, insect resistance, cold resistance, disease and virus resistance and specific marketing purposes.

02.0 IDENTIFY VARIETIES OF CITRUS--The student will be able to:

02.01 Identify citrus fruit varieties by color, shape, texture, maturity, seeds and leaves.
02.02 Identify rootstock varieties by characteristic of fruit, leaves and stems.

03.0 MANAGE THE PROPAGATION OF CITRUS TREES--The student will be able to:

03.01 Select a site for seedbeds and apply for site approval.
03.02 Supervise the preparation of site and plant certified seed.
03.03 Manage the culture and care of seedlings.
03.04 Select and cut certified budwood.
03.05 Manage the budding and wrapping of seedlings.
03.06 Train and supervise workers to maintain accurate records and counts in tagging and labeling rootstocks and scion varieties.
03.07 Supervise the culture and care of young budded nursery stock.
03.08 Supervise the digging and handling of nursery stock for potting or bareroot shipment.
03.09 Maintain strict nursery sanitation practices.

04.0 ANALYZE NUTRITIONAL DISORDERS AND DEVELOP A FERTILIZATION PROGRAM--The student will be able to:

04.01 Collect soil and plant tissue samples for analysis.
04.02 Interpret results of soil and tissue analysis.
04.03 Develop a fertilization program or schedule for grove and nursery.
04.04 Identify nutritional disorders and deficiencies in grove and nursery.
04.05 Calculate fertilization rates for citrus.
04.06 Compare advantages and disadvantages of different sources and forms of plant nutrients.
04.07 Calibrate fertilization equipment.
04.08 Supervise application of fertilizer.
04.09 Supervise cleaning and storage of fertilizer application equipment.

05.0 IDENTIFY INSECTS, DISEASES AND OTHER PATHOGENS OF CITRUS AND DEVELOP A PEST CONTROL MANAGEMENT PROGRAM--The student will be able to:

05.01 Identify insects, diseases and other pathogens of citrus.
05.02 Determine extent and severity of pest infestation.
05.03 Select and supervise the application of pesticides.
05.04 Calibrate and adjust pesticide applications.
05.05 Determine effectiveness of application or spray program.
05.06 Develop a pest management program or schedule.
05.07 Train workers in the safe use of pesticides.
05.08 Recognize symptoms of pesticide poisoning and provide first aid.
05.09 Safely dispose of pesticide containers.
05.10 Observe and maintain grove and nursery sanitation practices.
05.11 Supervise the cleaning and maintenance of pesticide application equipment.

06.0 IDENTIFY AND CONTROL CITRUS WEED PROBLEMS--The student will be able to:

06.01 Identify noxious weeds and vines of citrus.
06.02 Select appropriate herbicide and supervise the application.
06.03 Calibrate and adjust herbicide applicators.
06.04 Develop a weed/vine control program or schedule.
06.05 Determine appropriate conditions for effective and safe application of herbicides.
06.06 Supervise mechanical weed and vine control.

07.0 PROTECT CITRUS FROM FROST AND FREEZE DAMAGE--The student will be able to:

07.01 Monitor and interpret weather forecasts.
07.02 Supervise the preparation and maintenance of grove, nursery and equipment for frost and freeze.
07.03 Supervise procedures for protecting citrus from cold damage.
07.04 Protect young trees from cold damage.
07.05 Compare cost and efficiency of various methods of cold protection.

08.0 CALCULATE THE IRRIGATION REQUIREMENTS OF CITRUS AND MANAGE AN IRRIGATION PROGRAM--The student will be able to:

08.01 Determine irrigation requirements.
08.02 Plan an irrigation system.
08.03 Supervise the installation of irrigation equipment.
08.04 Service and maintain electric and engine driven pumps.
08.05 Operate and service low volume irrigation system.
08.06 Operate and service overhead irrigation system.
08.07 Calculate cost efficiency of irrigation system.

09.0 SELECT, MANAGE AND MAINTAIN CITRUS PRODUCTION EQUIPMENT--The student will be able to:

09.01 Determine the equipment requirements for the citrus operation.
09.02 Compare cost, efficiency and maintenance requirements of various models and makes of equipment.
09.03 Determine equipment replacement schedule.
09.04 Develop a schedule for servicing of equipment.
09.05 Instruct workers in the safe and efficient use of equipment.
09.06 Supervise the maintenance and repair of citrus equipment.
09.07 Keep maintenance records.

10.0 DETERMINE MATURITY AND QUALITY OF CITRUS FRUIT--The student will be able to:

10.01 Determine solids using refractometer.
10.02 Interpret results of citrus juice analysis.
10.03 Estimate quality grade of product.
10.04 Estimate date of maturity of fruit.

11.0 KEEP PRODUCTION, FINANCIAL, PERSONNEL AND MAINTENANCE RECORDS--The student will be able to:

11.01 Maintain fertilizer and pesticide application records.
11.02 Make grove plats.
11.03 Keep equipment maintenance and service records.
11.04 Keep inventory records.
11.05 Record production information.
11.06 Record labor and personnel information.
11.07 Analyze cost and effectiveness of management practices.
11.08 Prepare written reports.
11.09 Determine insurance needs.

12.0 MARKET CITRUS NURSERY AND GROVE PRODUCTS--The student will be able to:

12.01 Determine market for product.
12.02 Maintain customer service relations.
12.03 Arrange for transportation of product.
12.04 Evaluate market.
12.05 Interpret and analyze marketing contracts.
12.06 Locate sources of marketing information services.

13.0 MANAGE THE GROWTH AND CULTURE OF CITRUS TREES--The student will be able to:

13.01 Supervise daily operations.
13.02 Determine work schedules.
13.03 Inspect grove/nursery properties.
13.04 Hire, train and dismiss employees.
13.05 Determine cultural practices.
13.06 Implement instructions and requests.

14.0 HARVEST CITRUS--The student will be able to:

14.01 Make arrangements for harvesting crop.
14.02 Interpret and analyze harvesting contract.
14.03 Monitor harvesting operation.
14.04 Prepare contingency plans for harvesting citrus.

15.0 INTERPRET AND INCORPORATE TECHNICAL INFORMATION INTO MANAGEMENT PRACTICES--The student will be able to:

15.01 Observe local, state and federal pesticide regulations.
15.02 Observe grove and nursery site regulations.
15.03 Observe and interpret marketing restrictions and agreements.
15.04 Interpret and observe certification, licensing and inspection requirements.
15.05 List agencies responsible for the regulation of the citrus industry.
15.06 Attend workshops and seminars to upgrade skills and knowledge.
15.07 Maintain a file for technical information, periodicals and other publications.
15.08 Determine sources of up-to-date information and services.
15.09 List societies, organizations and associations related to occupation or profession.

16.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

16.01 Conduct a job search.
16.02 Secure information about a job.
16.03 Identify documents that may be required when applying for a job.
16.04 Complete a job application form correctly.
16.05 Demonstrate competence in job interview techniques.
16.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
16.07 Identify acceptable work habits.
16.08 Demonstrate knowledge of how to make job changes appropriately.
16.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Crop Production

CODE NUMBER: Secondary 8106400 Postsecondary AGR0249

Florida CIP 0101.030401

SECONDARY SCHOOL CREDITS 6 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____6-9 ___-12 X Postsecondary Adult Vocational

______ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:	10-12,30,31	VOC AGRI @4 AGRI PROD @7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 AGRI PROD @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farmers, vegetable (402.161-010), farmers, field crop (404.161-010), farmers, general (421.161-010), supervisors, vegetable farming (402.131-010), supervisors, field crop farming (404.131-010), supervisors, diversified crops (407.131-010), or to provide supplemental training for person previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to work in enterprises concerned with the production of grain, fiber, forage, vegetables and other crops. Subject matter also includes planting, fertilization, irrigation, weed control, pest control, harvesting and marketing, facility maintenance, farm equipment, record keeping, farm credit, supervisory skills, safety, and leadership and employability skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8106820	Agritechnology 1
8106830	Agritechnology 2
8106440	Crop Production 4
8106450	Crop Production 5
8106460	Crop Production 6

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, tractors and field cultivation equipment, power sprayers, chemical applicators, harvest equipment and planting equipment.

III. SPECIAL NOTE: FFA (secondary) and the National Postsecondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

III. SPECIAL NOTE: Continued

Because of the production and marketing cycle of the crop production industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

Intended outcomes 11, 12, and 13 in the Agritechnology core (8106800) have been deleted from this program as inappropriate.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 8.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

The asterisk (*) identifies student performance standards that are additions to the core and are unique to this program.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Explore the scope of the agriscience industry.
◆ 11. Provide for proper animal health and nutrition.
◆ 12. Identify procedures in animal production and reproduction.
◆ 13. Use procedures for exhibiting and marketing animals.
14. Compare, select, and use plant-production systems.
15. Fertilize plants and crops.
16. Irrigate plants and crops.
17. Control plant pests.
18. Operate, maintain, and service facilities, tools, and equipment.
19. Describe procedures for harvesting and marketing plant materials.
20. Apply principles of agribusiness finance.
21. Demonstrate leadership, employability, communication, and human-relations skills.
22. Prepare soil for planting crops
23. Select seed.
24. Plant crops.
25. Manage farm records.

IV. INTENDED OUTCOMES - Continued

26. Organize jobs and supervise workers
27. Demonstrate proficiency in applying basic mathematics, science and communication skills to agriculture problem solving.
28. Construct and repair farm facilities.

Note--Daggers (♦) indicate core outcomes not appropriate for Crop Production.

CF/11/07/91

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8106400

PROGRAM TITLE: Crop Production POSTSECONDARY NUMBER: AGR0249

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.
* 03.07 Identify possible consequences of not following safety precautions.
* 03.08 Follow all safety precautions when using pesticides and farming and welding equipment.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).

04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.
* 05.09 Control weeds with cultivation equipment
* 05.10 Evaluate weed control practices for effectiveness.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.
* 08.03 Determine market grade requirements for various crops.
* 08.04 Determine how local market prices are set.
* 08.05 Develop a marketing program for harvested crop.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.

09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Levels I & II.
10.02 Describe training requirements for entry and advancement in agriscience careers. Levels I & II.
10.03 Identify professional organizations and trade journals in the agriscience industry.

11.0 PROVIDE FOR PROPER ANIMAL HEALTH AND NUTRITION--The student will be able to:

NOTE--This outcome is not appropriate for Crop Production

12.0 IDENTIFY PROCEDURES IN ANIMAL PRODUCTION AND REPRODUCTION--The student will be able to:

NOTE--This outcome is not appropriate for Crop Production

13.0 USE PROCEDURES FOR EXHIBITING AND MARKETING ANIMALS--The student will be able to:

NOTE--This outcome is not appropriate for Crop Production

14.0 COMPARE, SELECT, AND USE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.01 Compare different plant production systems.
14.02 Propagate, grow, and transplant plants.
14.03 Identify varieties of local commercial plants and field crops.
14.04 Select and prepare site and seed bed for planting.
14.05 Identify methods of pruning plants to achieve desired growth and to maintain health.
14.06 Calculate planting rate and spacing; solve time, distance, area, and volume problems in agriscience.
14.07 Operate and adjust planting equipment.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.01 Develop fertilization schedules and calculate fertilizer rates for plants; solve time, distance, area, and volume problems in agriscience.
15.02 Identify common nutrient-deficiency symptoms in plants.
15.03 Calibrate fertilization equipment and fertilize plants; solve time, distance, area, and volume problems in agriscience.
15.04 Interpret information on a fertilizer label.
15.05 Compare sources and forms of nutrients.
15.06 Determine methods of applying fertilizer materials.
* 15.07 Determine nutrient requirements for individual crops.
* 15.08 Collect soil samples for analysis and interpret results.

16.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

16.01 Recognize soil and plant conditions indicating irrigation needs and develop an irrigation schedule.
16.02 Compare and select irrigation equipment and methods.
16.03 Install, operate, maintain, and repair irrigation equipment.
* 16.04 Determine irrigation requirements for a variety of crops.
* 16.05 Interpret water quality analysis reports.
* 16.06 List agencies responsible for local stream laws and ground water policies.

CROP PRODUCTION STANDARDS - CONTINUED

17.0 CONTROL PLANT PESTS--The student will be able to:

17.01 Identify common plant pests and their damages.
17.02 Describe life cycles of insects, pests, and diseases.
17.03 Identify the procedures and requirements for obtaining a restricted-use-pesticide operator's license.
17.04 Select, mix, and apply a nonrestricted chemical according to the label and local, state, federal and EPA regulations.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.01 Demonstrate basic facility maintenance, installation, or repair.
18.02 Safely operate, maintain, service, and repair equipment.
18.03 Use and maintain hand tools and power equipment (e.g., power saws, welders).
18.04 Maintain and service small gasoline engines.
* 18.05 Maintain equipment maintenance and service records.
* 18.06 Cut and weld with oxyacetylene and arc welding equipment.

19.0 DESCRIBE PROCEDURES FOR HARVESTING AND MARKETING PLANT MATERIALS--The student will be able to:

19.01 Determine maturity, condition, and volume of crops to be harvested.
19.02 Describe procedures for harvesting crops.
19.03 Determine kinds and types of storage facilities for crops.
19.04 Grade, treat, pack, and/or store harvested crop.
19.05 Interpret and analyze market information.
19.06 Compare, select, and locate marketing channels and develop a marketing program.
* 19.07 Measure moisture content of harvested crops.
* 19.08 Plan harvest according to conditions and labor requirements.
* 19.09 Adjust harvesting equipment for specific crops.
* 19.10 Harvest a crop using harvesting equipment.
* 19.11 Protect stored crops from pests.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.01 Identify major sources of credit for agribusiness.
20.02 Complete a business loan application.
20.03 Explain the purposes and structures of contracts, leases, deeds, and insurance policies.
20.04 Maintain and interpret supervised agricultural experience (SAE) records (e.g., depreciation, inventory, budgets).
* 20.05 Develop equitable rental and leasing agreements for land and equipment.
* 20.06 Prepare a case using accepted forms for obtaining credit at a lending institution.

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.01 Conduct group meetings using parliamentary procedure and public-speaking skills.
21.02 Identify appropriate work and personal habits. Level I.
21.03 Identify appropriate work and personal habits. Level II.
21.04 Complete a job application.
21.05 Conduct a job search.
* 21.06 Secure information about a job.
* 21.07 Identify documents that may be required when applying for a job.
* 21.08 Demonstrate competence in job interview techniques.
* 21.09 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
* 21.10 Demonstrate knowledge of how to make job changes appropriately.

22.0 PREPARE SOIL FOR PLANTING CROPS--The student will be able to:

22.01 Identify soil texture.
22.02 Describe types of soil erosion.
22.03 Adjust tillage equipment to field conditions.
22.04 Till soil.
22.05 Evaluate and perform vegetatative and mechanical conservation practices.

23.0 SELECT SEED--The student will be able to:

23.01 Classify plants and annuals, biennials or perennials.
23.02 Interpret and evaluate a seed tag.
23.03 Evaluate and select seed and transplants.
23.04 Identify the requirements for seed certification.
25.05 Test seed for germination.

24.0 PLANT CROPS--The student will be able to:

24.01 Plant and grow a seedbed in a climate-controlled structure.
24.02 Prepare seed pieces for planting (asexual propagation).
24.03 Determine method for planting and select appropriate equipment.
24.04 Plant crops.

25.0 MANAGE FARM RECORDS--The student will be able to:

25.01 Maintain farm financial records (expense, receipts, inventories, depreciation).
25.02 Summarize farm financial records (determine gross income, net income, enterprise income).
25.03 Distinguish between assets and liabilities.
25.04 Maintain fertilization and pesticide application use records.
25.05 Record cultural and production information.
25.06 Maintain labor and personnel records.
25.07 Prepare an annual budget.
25.08 Identify sources and kinds of farm insurance.
25.09 Maintain equipment, machinery, and facilities inventory records.
25.10 Prepare a tax form.
25.11 Determine credit needs, cash flow needs, and returns on investments.
25.12 Secure professional services and information.

26.0 ORGANIZE JOBS AND SUPERVISE WORKERS--The student will be able to:

26.01 Demonstrate and instruct employees in their tasks.
26.02 Enforce safety regulations.
26.03 Prepare daily work plans.
26.04 Evaluate performance of workers.
26.05 Acquire equipment and materials.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs and tables.
27.02 Identify basic concepts of physics in agricultural applications.
27.03 Identify basic concepts of chemistry in agricultural applications.
27.04 Identify basic biological concepts in agricultural applications.
27.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
27.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

28.0 CONSTRUCT AND REPAIR FARM FACILITIES--The student will be able to:

28.01 Build and repair fences.
28.02 Form and pour concrete.
28.03 Square and build a simple farm building.
28.04 Develop a bill of materials for a construction project.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
COURSE CREDIT: 1
PROGRAM TITLE: Crop Production
PROGRAM NUMBER: 8106400
COURSE TITLE: Agriscience Foundations
COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
COURSE CREDIT: 1
PROGRAM TITLE: Crop Production
PROGRAM NUMBER: 8106400
COURSE TITLE: Agritechnology 1
COURSE NUMBER: 8106820

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of agriscience industry careers; prevention and treatment of livestock diseases; livestock anatomy; wholesale cuts of meat; animal reproduction and identification; animal safety; animal-health certification; plant growth; plant fertilization; safe use of pesticides; maintenance of tools and equipment; record keeping; and employability skills.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Level I.
10.02 Describe training requirements for entry and advancement in agriscience careers. Level I.

14.0 COMPARE, SELECT, AND USE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.01 Compare different plant production systems.
14.02 Propagate, grow, and transplant plants.
14.04 Select and prepare site and seed bed for planting.
14.05 Identify methods of pruning plants to achieve desired growth and to maintain health.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.04 Interpret information on a fertilizer label.
15.05 Compare sources and forms of nutrients.
15.06 Determine methods of applying fertilizer materials.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.03 Use and maintain hand tools and power equipment (e.g., power saws, welders).
18.04 Maintain and service small gasoline engines.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.04 Maintain and interpret supervised agricultural experience (SAE) records (e.g., depreciation, inventory, budgets).

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.01 Conduct group meetings using parliamentary procedure and public-speaking skills.
21.02 Identify appropriate work and personal habits. Level I.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — COURSE CREDIT: 1

PROGRAM TITLE: Crop Production — PROGRAM NUMBER: 8106400

COURSE TITLE: Agritechnology 2 — COURSE NUMBER: 8106830

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of job and training requirements; professional organizations; crop identification; planting crops; fertilizer calculations and application; irrigation; pest control; harvesting, packing, and grading crops, safe equipment operation; finance; and employability skills.

10.0 EXPLORE THE SCOPE OF THE AGRISCIENCE INDUSTRY--The student will be able to:

10.01 Investigate career opportunities in agriscience industries. Level II.
10.02 Describe training requirements for entry and advancement in agriscience careers. Level II.
10.03 Identify professional organizations and trade journals in the agriscience industry.

14.0 COMPARE, SELECT, AND UTILIZE PLANT PRODUCTION SYSTEMS--The student will be able to:

14.03 Identify varieties of local commercial plants and field crops.
14.06 Calculate planting rate and spacing; solve time, distance, area, and volume problems in agriscience.
14.07 Operate and adjust planting equipment.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.01 Develop fertilization schedules and calculate fertilizer rates for plants; solve time, distance, area, and volume problems in agriscience.
15.02 Identify common nutrient-deficiency symptoms in plants.
15.03 Calibrate fertilization equipment and fertilize plants; solve time, distance, area, and volume problems in agriscience.

16.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

16.01 Recognize soil and plant conditions indicating irrigation needs and develop an irrigation schedule.
16.02 Compare and select irrigation equipment and methods.
16.03 Install, operate, maintain, and repair irrigation equipment.

17.0 CONTROL PLANT PESTS--The student will be able to:

17.01 Identify common plant pests and their damages.
17.02 Describe life cycles of insects, pests, and diseases.
17.03 Identify the procedures and requirements for obtaining a restricted-use-pesticide operator's license.
17.04 Select, mix, and apply a nonrestricted chemical according to the label and local, state, federal, and EPA regulations.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.01 Demonstrate basic facility maintenance, installation, or repair.
18.02 Safely operate, maintain, service, and repair equipment.

19.0 DESCRIBE PROCEDURES FOR HARVESTING AND MARKETING PLANT MATERIALS--The student will be able to:

19.01 Determine maturity, condition, and volume of crops to be harvested.
19.02 Describe procedures for harvesting crops.
19.03 Determine kinds and types of storage facilities for crops.
19.04 Grade, treat, pack, and/or store harvested crop.
19.05 Interpret and analyze market information.

19.06 Compare, select, and locate marketing channels and develop a marketing program.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.01 Identify major sources of credit for agribusiness.
20.02 Complete a business loan application.
20.03 Explain the purposes and structures of contracts, leases, deeds, and insurance policies.

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.03 Identify appropriate work and personal habits. Level II.
21.04 Complete a job application.

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STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture COURSE CREDIT: 1

PROGRAM TITLE: Crop Production PROGRAM NUMBER: 8106400

COURSE TITLE: Crop Production 4 COURSE NUMBER: 8106440

COURSE DESCRIPTION:

This course is designed to develop competency in safety, fertilization, irrigation, soil preparation, seed selection, planting, farm records and problem solving.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.07 Identify possible consequences of not following safety precautions.
03.08 Follow all safety precautions when using pesticides and farming and welding equipment.

15.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

15.07 Determine nutrient requirements for individual crops.
15.08 Collect soil samples for analysis and interpret results.

16.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

16.04 Determine irrigation requirements for a variety of crops.
16.05 Interpret water quality analysis reports.
16.06 List agencies responsible for local stream laws and ground water policies.

22.0 PREPARE SOIL FOR PLANTING CROPS--The student will be able to:

22.01 Identify soil texture.
22.02 Describe types of soil erosion.
22.03 Adjust tillage equipment to field conditions.
22.04 Till soil.
22.05 Evaluate and perform vegetatative and mechanical conservation practices.

23.0 SELECT SEED--The student will be able to:

23.01 Classify plants and annuals, biennials or perennials.
23.02 Interpret and evaluate a seed tag.
23.03 Evaluate and select seed and transplants.
23.04 Identify the requirements for seed certification.
25.05 Test seed for germination.

24.0 PLANT CROPS--The student will be able to:

24.01 Plant and grow a seedbed in a climate-controlled structure.
24.02 Prepare seed pieces for planting (asexual propagation).

Crop Production 4 - Continued

24.03 Determine method for planting and select appropriate equipment.
24.04 Plant crops.

25.0 MANAGE FARM RECORDS--The student will be able to:

25.03 Distinguish between assets and liabilities.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs and tables.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Crop Production
PROGRAM NUMBER: 8106400

COURSE TITLE: Crop Production 5
COURSE NUMBER: 8106450

COURSE DESCRIPTION:

This course is designed to develop competency in the area of pest management harvesting and handling plant materials, securing job information, managing farm records, and basic concepts of physics, chemistry and biology as they relate to crop production.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.09 Control weeds with cultivation equipment
05.10 Evaluate weed control practices for effectiveness.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.03 Determine market grade requirements for various crops.
08.04 Determine how local market prices are set.
08.05 Develop a marketing program for harvested crop.

19.0 DESCRIBE PROCEDURES FOR HARVESTING AND MARKETING PLANT MATERIALS--The student will be able to:

19.07 Measure moisture content of harvested crops.
19.08 Plan harvest according to conditions and labor requirements.
19.09 Adjust harvesting equipment for specific crops.
19.10 Harvest a crop using harvesting equipment.
19.11 Protect stored crops from pests.

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.06 Secure information about a job.

25.0 MANAGE FARM RECORDS--The student will be able to:

25.04 Maintain fertilization and pesticide application use records.
25.05 Record cultural and production information.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.02 Identify basic concepts of physics in agricultural applications.
27.03 Identify basic concepts of chemistry in agricultural applications.
27.04 Identify basic biological concepts in agricultural applications.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Crop Production
PROGRAM NUMBER: 8106400

COURSE TITLE: Crop Production 6
COURSE NUMBER: 8106460

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of tool and equipment operation and service, agribusiness finance, employability skills, management of farm records, organizing and supervising employees, the use of correct English in oral and written presentations and the construction and repair of farm facilities.

18.0 OPERATE, MAINTAIN, AND SERVICE FACILITIES, TOOLS, AND EQUIPMENT--The student will be able to:

18.05 Maintain equipment maintenance and service records.
18.06 Cut and weld with oxyacetylene and arc welding equipment.

20.0 APPLY PRINCIPLES OF AGRIBUSINESS FINANCE--The student will be able to:

20.05 Develop equitable rental and leasing agreements for land and equipment.
20.06 Prepare a case using accepted forms for obtaining credit at a lending institution.

21.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

21.05 Conduct a job search.
21.07 Identify documents that may be required when applying for a job.
21.08 Demonstrate competence in job interview techniques.
21.09 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
21.10 Demonstrate knowledge of how to make job changes appropriately.

25.0 MANAGE FARM RECORDS--The student will be able to:

25.01 Maintain farm financial records (expense, receipts, inventories, depreciation).
25.02 Summarize farm financial records (determine gross income, net income, enterprise income).
25.06 Maintain labor and personnel records.
25.07 Prepare an annual budget.
25.08 Identify sources and kinds of farm insurance.
25.09 Maintain equipment, machinery, and facilities inventory records.
25.10 Prepare a tax form.
25.11 Determine credit needs, cash flow needs, and returns on investments.
25.12 Secure professional services and information.

26.0 ORGANIZE JOBS AND SUPERVISE WORKERS--The student will be able to:

26.01 Demonstrate and instruct employees in their tasks.
26.02 Enforce safety regulations.
26.03 Prepare daily work plans.
26.04 Evaluate performance of workers.
26.05 Acquire equipment and materials.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATIONS SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
27.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

28.0 CONSTRUCT AND REPAIR FARM FACILITIES--The student will be able to:

- 28.01 Build and repair fences.
- 28.02 Form and pour concrete.
- 28.03 Square and build a simple farm building.
- 28.04 Develop a bill of materials for a construction project.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Dairy Production

CODE NUMBER: Secondary 8106500 Postsecondary DAS0210

Florida CIP 0101.030202

SECONDARY SCHOOL CREDITS 6 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____ 6-9 ____ 9-12 X Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12, 30,31

CERTIFICATION COVERAGE:	10-12, 30,31	VOC AGRI @4 AGRI PROD #7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 AGRI PROD @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as supervisors, dairy farm (410.131-018), barn bosses (410.131-010), milkers, machine (410.685-010), farm machine operators (409.683-010), farmworkers, dairy (410.684-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to operate dairy production enterprises by developing competencies concerning selection, breeding, nutrition, health, housing, feeding, marketing, and record keeping. Subject matter also includes dairy regulations and rules, animal identification, pasture and forage crops, equipment repair and maintenance, as well as leadership, employability, communication and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8106120	Animal Science 1
8106130	Animal Science 2
8106540	Dairy Production 4
8106550	Dairy Production 5
8106560	Dairy Production 6

II. LABORATORY ACTIVITIES: Agricultural shop, land and dairy laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, tractors and field equipment, milking barn machinery and equipment and sanitation equipment.

III. SPECIAL NOTE: FFA (secondary) and the National Post-secondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

III. SPECIAL NOTES: Continued

Because of the production and marketing cycle of the dairy industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 8.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications and leadership skills.
10. Describe the animal science industry.
11. Apply approved nutritional and animal health practices.
12. Groom, exhibit and market animals.
13. Maintain equipment and facilities.
14. Operate, maintain, and repair machinery and equipment.
15. Maintain and analyze records.
16. Follow safety precautions.
17. Control parasites and diseases of animals.management.
18. Perform emergency first aid.
19. Identify, select and breed animals.
20. Plan routine management of animals and facilities.
21. Feed and water dairy cattle.
22. Maintain sanitary equipment and facilities.
23. Practice correct milking procedures.
24. Select and breed dairy cattle.
25. Attend cattle during calving.
26. Care for newborn calves.
27. Grow and maintain pasture, forage and feed crops.
28. Maintain and repair equipment and facilities.
29. Organize and supervise workers.

IV. INTENDED OUTCOMES: Continued

30. Market dairy cattle and dairy products.
31. Identify rules and regulations affecting the dairy cattle/milk production industry.
32. Control diseases and parasites of dairy cattle.
33. Demonstrate leadership, employability, communication, and human relations skills.
34. Demonstrate proficiency in applying basic mathematics, science and communication skills to agriculture problem solving.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
SECONDARY NUMBER: 8106500
PROGRAM TITLE: Dairy Production
POSTSECONDARY NUMBER: DAS0210

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture — SECONDARY NUMBER: 8106500
PROGRAM TITLE: Dairy Production — POSTSECONDARY NUMBER: DAS0210

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
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10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.
11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.06 Measure and add medication to feed as prescribed.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.
11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.05 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.
12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.
14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.

15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.
15.06 Analyze records to determine efficiency of operation.
15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.
19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.

20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.
20.06 Implement and maintain sanitary conditions for animals including young.
20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

21.0 FEED AND WATER DAIRY CATTLE--The student will be able to:

21.01 Determine nutritional requirements of dairy cattle for growth, production and reproduction.
21.02 Categorize and determine nutritional value of feedstuffs.
21.03 Analyze feed tag.
21.04 Select and feed forages.
21.05 Provide an adequate water supply.
21.06 Submit feeds and forage samples for analysis.
21.07 Calculate amount of feed needed.
21.08 Balance rations for producing and dry cows.
21.09 Assist in the development of feeding systems and schedules.
21.10 Assist in the development of calf feeding programs.
21.11 Feed dairy cattle.

22.0 MAINTAIN SANITARY EQUIPMENT AND FACILITIES--The student will be able to:

22.01 Clean and sanitize milking equipment (hoses, lines, holding tanks, and other milk handling equipment).
22.02 Wash and sanitize milking parlor.
22.03 Remove and dispose of animal wastes.

23.0 PRACTICE CORRECT MILKING PROCEDURES--The student will be able to:

23.01 Develop and follow an efficient and regular milking routine.
23.02 Practice gentle handling of cows.
23.03 Stimulate cows for milk letdown.
23.04 Clean cows udder.
23.05 Milk cows.
23.06 Train heifers to milking.

24.0 SELECT AND BREED DAIRY CATTLE--The student will be able to:

24.01 Judge, evaluate and cull dairy cattle.
24.02 Evaluate factors used in selecting dairy cattle.
24.03 Identify anatomical parts of the male and female reproductive tracts of dairy cattle and explain their function.
24.04 Identify common breeding problems and corrective measures.
24.05 Develop a breeding program and schedule.
24.06 Identify signs of pregnancy and pregnancy test cows.
24.07 Describe artificial insemination procedures.
24.08 Breed animals by artificial insemination.
24.09 Manage A.I. semen and equipment.
24.10 Secure A.I. professional services.

25.0 ATTEND CATTLE DURING CALVING--The student will be able to:

25.01 Identify signs of parturition.
25.02 Identify calving disorders.
25.03 Assist cow in delivery.
25.04 Assist calf at delivery.
25.05 Prepare cow and facilities for parturition.

26.0 CARE FOR NEWBORN CALVES--The student will be able to:

26.01 Feed colostrum to newborn calves.
26.02 Wean calves.
26.03 Treat navel with iodine.
26.04 Administer appropriate calfhood vaccinations and vitamins.
26.05 Feed and water calves.

27.0 GROW AND MAINTAIN PASTURE, FORAGE AND FEED CROPS--The student will be able to:

27.01 Assist in determining pasture and forage needs.
27.02 Take a soil sample and interpret results.
27.03 Describe characteristics of land capability classes.
27.04 Describe soil and water conservation practices.
27.05 Determine range and pasture quality and quantity.
27.06 Prepare soil for feed, pasture and forage crops.
27.07 Fertilize pasture, forage and feed crops.
27.08 Plant and grow pasture, feed and forage crops.
27.09 Control noxious weeds and pests in crops.
27.10 Harvest forage and feed crops.
27.11 Store harvested feed and forage crops.
27.12 Assist in the development of a plan for the rotation of fields, pens and pastures.

28.0 MAINTAIN, AND REPAIR EQUIPMENT AND FACILITIES--The students will be able to:

28.01 Construct, repair and maintain gates, pens, stalls and fences.
28.02 Repair and maintain buildings and storage facilities.
28.03 Form, pour and finish concrete.
28.04 Construct livestock shelters.
28.05 Identify refrigeration problems and secure professional services.
28.06 Install and repair plumbing.
28.07 Maintain sanitary facilities and equipment.

29.0 ORGANIZE AND SUPERVISE WORKERS--The student will be able to:

29.01 Demonstrate and instruct employees in their tasks.
29.02 Enforce safety regulations.
29.03 Prepare daily work plans.
29.04 Evaluate performance workers.
29.05 Acquire materials and equipment for jobs.

30.0 MARKET DAIRY CATTLE AND DAIRY PRODUCTS--The student will be able to:

30.01 Identify and analyze markets for dairy cattle.
30.02 Identify and analyze markets for milk/dairy products.
30.03 Determine sources of market information.
30.04 Determine quality grades of milk/dairy products.
30.05 Assemble, load and haul dairy cattle to market.
30.06 Market milk/dairy products.
30.07 Prepare appropriate shipping and health certification required for marketing and moving dairy cattle.

31.0 IDENTIFY RULES AND REGULATIONS AFFECTING THE DAIRY CATTLE/MILK PRODUCTION INDUSTRY--The student will be able to:

31.01 Maintain a file of current livestock rules and regulations.
31.02 Secure professional services and information.
31.03 Observe EPA pesticide use regulations.
31.04 Observe regulations regarding the use of medications.
31.05 Observe state and federal regulations regarding brucellosis testing/eradication program and other programs.
31.06 Identify applicable land-use and zoning regulations.
31.07 Identify agencies affecting land utilization (e.g., DNR, DER, EPA).
31.08 Identify agencies regulating employee /employer (e.g., OSHA).

32.0 CONTROL DISEASES AND PARASITES OF DAIRY CATTLE--The student will be able to.

32.01 Identify and report common livestock diseases.
32.02 Identify and report disorders associated with feeding (bloat, colic, green pasture, and mold).
32.03 Identify and report infestations of livestock internal and external parasites.
32.04 Identify and treat mastitis problems.
32.05 Dip teats to prevent incidence of mastitis.

32.06 Assist in the treatment of livestock for foot ailments.
32.07 Assist in the development of a schedule for preventative medicine
32.08 Withhold milk from treated cows in accordance with directions on medication labels.
32.09 Restrain dairy animals.

33.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN RELATIONS SKILLS--The student will be able to:

33.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
33.02 Identify acceptable work habits (ethics) and desired personal characteristics.
33.03 Demonstrate acceptable employee-hygiene habits.
33.04 Secure information about a job.
33.05 Complete a job application.
33.06 Demonstrate competence in job-interview techniques.
33.07 Demonstrate proper office procedures.
33.08 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
33.09 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

34.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

34.01 Solve time, distance, area, and volume problems.
34.02 Solve ratio, proportion, and percentage problems.
34.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
34.04 Identify basic concepts of physics in agricultural applications.
34.05 Identify basic concepts of chemistry in agricultural applications.
34.06 Identify basic biological concepts in agricultural applications.
34.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
34.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
34.09 Demonstrate the scientific method in agricultural problem solving.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture — COURSE CREDIT: 1
PROGRAM TITLE: Dairy Production — PROGRAM NUMBER: 8106500
COURSE TITLE: Agriscience Foundations — COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

AGRISCIENCE FOUNDATIONS - Continued

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Dairy Production	PROGRAM NUMBER:	8106500
COURSE TITLE:	Animal Science 1	COURSE NUMBER:	8106120

COURSE DESCRIPTION:

The purpose of this course is to provide competencies in the areas of history, animal nutrition, health, grooming, showing, marketing, facilities and equipment maintenance, operation and repair of machinery, safety, parasite and disease control, animal first aid, and breed identification and selection.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.
11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.05 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.

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STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Dairy Production
PROGRAM NUMBER: 8106500

COURSE TITLE: Animal Science 2
COURSE NUMBER: 8106130

COURSE DESCRIPTION:

The purpose of this course is to provide competency in the areas of animal nutrition and health, grooming, exhibiting and marketing, operation and maintenance of machinery, record keeping, safety, parasite and disease control, first aid, and management.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.06 Measure and add medication to feed as prescribed.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.

11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.
15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.
15.06 Analyze records to determine efficiency of operation.
15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.
20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.

20.06 Implement and maintain sanitary conditions for animals including young.
20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
COURSE CREDIT: 1
PROGRAM TITLE: Dairy Production
PROGRAM NUMBER: 8106500
COURSE TITLE: Dairy Production 4
COURSE NUMBER: 8106540

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of feeding and watering, milking, selection and breeding dairy cattle, sanitation and in assisting cattle during calving.

21.0 FEED AND WATER DAIRY CATTLE--The student will be able to:

21.01 Determine nutritional requirements of dairy cattle for growth, production and reproduction.
21.02 Categorize and determine nutritional value of feedstuffs.
21.03 Analyze feed tag.
21.04 Select and feed forages.
21.05 Provide an adequate water supply.
21.06 Submit feeds and forage samples for analysis.
21.07 Calculate amount of feed needed.
21.08 Balance rations for producing and dry cows.
21.09 Assist in the development of feeding systems and schedules.
21.10 Assist in the development of calf feeding programs.
21.11 Feed dairy cattle.

22.0 MAINTAIN SANITARY EQUIPMENT AND FACILITIES--The student will be able to:

22.01 Clean and sanitize milking equipment (hoses, lines, holding tanks, and other milk handling equipment).
22.02 Wash and sanitize milking parlor.
22.03 Remove and dispose of animal wastes.

23.0 PRACTICE CORRECT MILKING PROCEDURES--The student will be able to:

23.01 Develop and follow an efficient and regular milking routine.
23.02 Practice gentle handling of cows.
23.03 Stimulate cows for milk letdown.
23.04 Clean cows udder.
23.05 Milk cows.
23.06 Train heifers to milking.

24.0 SELECT AND BREED DAIRY CATTLE--The student will be able to:

24.01 Judge, evaluate and cull dairy cattle.
24.02 Evaluate factors used in selecting dairy cattle.
24.03 Identify anatomical parts of the male and female reproductive tracts of dairy cattle and explain their function.
24.04 Identify common breeding problems and corrective measures.
24.05 Develop a breeding program and schedule.
24.06 Identify signs of pregnancy and pregnancy test cows.
24.07 Describe artificial insemination procedures.
24.08 Breed animals by artificial insemination.
24.09 Manage A.I. semen and equipment.
24.10 Secure A.I. professional services.

Dairy Production 4 - Continued

25.0 ATTEND CATTLE DURING CALVING--The student will be able to:

25.01 Identify signs of parturition.
25.02 Identify calving disorders.
25.03 Assist cow in delivery.
25.04 Assist calf at delivery.
25.05 Prepare cow and facilities for parturition.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Dairy Production	PROGRAM NUMBER:	8106500
COURSE TITLE:	Dairy Production 5	COURSE NUMBER:	8106550

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of newborn calf care; pastures, forages and feed crops; equipment and facilities; organizing and supervising workers, and marketing dairy cattle and products.

26.0 CARE FOR NEWBORN CALVES--The student will be able to:

26.01 Feed colostrum to newborn calves.
26.02 Wean calves.
26.03 Treat navel with iodine.
26.04 Administer appropriate calfhood vaccinations and vitamins.
26.05 Feed and water calves.

27.0 GROW AND MAINTAIN PASTURE, FORAGE AND FEED CROPS--The student will be able to:

27.01 Assist in determining pasture and forage needs.
27.02 Take a soil sample and interpret results.
27.03 Describe characteristics of land capability classes.
27.04 Describe soil and water conservation practices.
27.05 Determine range and pasture quality and quantity.
27.06 Prepare soil for feed, pasture and forage crops.
27.07 Fertilize pasture, forage and feed crops.
27.08 Plant and grow pasture, feed and forage crops.
27.09 Control noxious weeds and pests in crops.
27.10 Harvest forage and feed crops.
27.11 Store harvested feed and forage crops.
27.12 Assist in the development of a plan for the rotation of fields, pens and pastures.

28.0 MAINTAIN, AND REPAIR EQUIPMENT AND FACILITIES--The students will be able to:

28.01 Construct, repair and maintain gates, pens, stalls and fences.
28.02 Repair and maintain buildings and storage facilities.
28.03 Form, pour and finish concrete.
28.04 Construct livestock shelters.
28.05 Identify refrigeration problems and secure professional services.
28.06 Install and repair plumbing.
28.07 Maintain sanitary facilities and equipment.

29.0 ORGANIZE AND SUPERVISE WORKERS--The student will be able to:

29.01 Demonstrate and instruct employees in their tasks.
29.02 Enforce safety regulations.
29.03 Prepare daily work plans.
29.04 Evaluate performance workers.
29.05 Acquire materials and equipment for jobs.

30.0 MARKET DAIRY CATTLE AND DAIRY PRODUCTS--The student will be able to:

30.01 Identify and analyze markets for dairy cattle.
30.02 Identify and analyze markets for milk/dairy products.
30.03 Determine sources of market information.
30.04 Determine quality grades of milk/dairy products.
30.05 Assemble, load and haul dairy cattle to market.
30.06 Market milk/dairy products.
30.07 Prepare appropriate shipping and health certification required for marketing and moving dairy cattle.

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STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Dairy Production
PROGRAM NUMBER: 8106500

COURSE TITLE: Dairy Production 6
COURSE NUMBER: 8106560

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of rules and regulations, disease and parasite control, leadershp, employability, communication and human relations skills, and agricultural problem solving.

31.0 IDENTIFY RULES AND REGULATIONS AFFECTING THE DAIRY CATTLE/MILK PRODUCTION INDUSTRY--The student will be able to:

31.01 Maintain a file of current livestock rules and regulations.
31.02 Secure professional services and information.
31.03 Observe EPA pesticide use regulations.
31.04 Observe regulations regarding the use of medications.
31.05 Observe state and federal regulations regarding brucellosis testing/eradication program and other programs.
31.06 Identify applicable land-use and zoning regulations.
31.07 Identify agencies affecting land utilization (e.g., DNR, DER, EPA).
31.08 Identify agencies regulating employee /employer (e.g., OSHA).

32.0 CONTROL DISEASES AND PARASITES OF DAIRY CATTLE--The student will be able to.

32.01 Identify and report common livestock diseases.
32.02 Identify and report disorders associated with feeding (bloat, colic, green pasture, and mold).
32.03 Identify and report infestations of livestock internal and external parasites.
32.04 Identify and treat mastitis problems.
32.05 Dip teats to prevent incidence of mastitis.
32.06 Assist in the treatment of livestock for foot ailments.
32.07 Assist in the development of a schedule for preventative medicine
32.08 Withhold milk from treated cows in accordance with directions on medication labels.
32.09 Restrain dairy animals.

33.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN RELATIONS SKILLS--The student will be able to:

33.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
33.02 Identify acceptable work habits (ethics) and desired personal characteristics.
33.03 Demonstrate acceptable employee-hygiene habits.
33.04 Secure information about a job.
33.05 Complete a job application.
33.06 Demonstrate competence in job-interview techniques.
33.07 Demonstrate proper office procedures.

33.08 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
33.09 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

34.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

34.01 Solve time, distance, area, and volume problems.
34.02 Solve ratio, proportion, and percentage problems.
34.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
34.04 Identify basic concepts of physics in agricultural applications.
34.05 Identify basic concepts of chemistry in agricultural applications.
34.06 Identify basic biological concepts in agricultural applications.
34.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
34.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
34.09 Demonstrate the scientific method in agricultural problem solving.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Environmental Horticulture

CODE NUMBER: Secondary 8121500 Postsecondary ORV0010

Florida CIP 0101.069901

SECONDARY SCHOOL CREDITS 3 COLLEGE CREDITS ___ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____ 7-9 ____ 9-12 X Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12, 30, 31

CERTIFICATION COVERAGE:

CERTIFICATION COVERAGE:	10-12, 30, 31	VOC AGRI 04 HORTICULT 07	AGRI 04 AGRICULTUR 1 2
	30, 31	VOC AGRI 04 HORTICULT 07 G	AGRI 02 04 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment in positions in the agriculture industry, such as nursery workers (79005503), horticultural specialty grower, field (405.161-014); horticultural specialty grower, inside (405.161-018); horticultural pest control worker (408.381-010); disease and insect control field inspector (408.687-010); landscape laborer (408.687-014); and landscape gardener (408.161-010), or to provide supplemental training for persons previously or currently employed in these occupations.

This program is a standard core for the following agricultural programs: Floriculture, Landscape Operations, Nursery Operations, Turfgrass Operations.

Completers of this program will be prepared to enter advanced training and education in specialized fields of agriscience or agribusiness. They may also be employed as trainees or beginning workers in various agriscience- or agribusiness-related positions in certain business and industry.

The content includes, but is not limited to, instruction that prepares individuals to produce, process, market, and maintain plants, shrubs, turf, and trees used principally for functional, recreational, and aesthetic purposes. State-of-the-art technology coupled with environmentally sound principles and practices will be employed to carry out this instruction. Subject matter also includes fertilization, irrigation, harvesting and marketing, facility maintenance, safe operation and maintenance of related equipment, pest management, and plant identification, as well as employability skills, mathematics, biological science, communications, and human-relations skills.

Listed below are the courses that this program comprises when offered at the secondary level:

8106810	Agriscience Foundations
8121510	Introductory Horticulture
8121520	Horticultural Science

II. LABORATORY ACTIVITIES: Classroom, plant nursery laboratory, and shop are an integral part of this program, including the general maintenance and safe use of all instructional resources.

III. SPECIAL NOTE: FFA (secondary) and the National Postsecondary Agriculture Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership-training experiences and for reinforcing specific vocational skills. These activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student project, (3) placement for experience, and (4) cooperative education.

Because of the production and marketing cycle of ornamental-horticulture industries, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Students can take the cooperative training either during or after completing the program. Whenever the cooperative method is offered, the following are required for each student: a training plan, signed by the student, teacher, and employer, which includes instructional objectives and a list of on-the-job and in-school learning experiences; a workstation reflecting equipment, skills, and tasks that are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic-skills grade levels required for this postsecondary adult vocational program are: Mathematics 8.0, and Language 8.0, Reading 8.0. These grade level numbers correspond to grade-equivalent scores obtained on a state-designated basic-skills examination.

The typical length of this program for the average-achieving student is 450 hours.

The particular outcomes and student performance standards that the handicapped student must master to earn credit must be specified in the student's individual education plan (IEP). Additional credits may be earned when outcomes and standards are mastered, in accordance with the requirements indicated in subsequent IEPs. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the horticulture industry.
11. Identify and classify plants.
12. Propagate plants.
13. Identify growing media and apply fertilizers.
14. Irrigate plants and turf.
15. Control pests.

IV. INTENDED OUTCOMES: Continued

16. Control plant growth.
17. Harvest, transport, and install plant materials.
18. Operate, repair, and maintain tools and equipment.
19. Demonstrate leadership, employability, communications, and human-relations skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8121500

PROGRAM TITLE: Environmental Horticulture POSTSECONDARY NUMBER: ORV0010

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

ENVIRONMENTAL HORTICULTURE STANDARDS - Continued

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.

09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.
10.04 Describe regulations that affect the horticulture industry.
10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Levels I and II.
11.02 Classify plants botanically and list environmental preferences of plants (e.g., shade, sun, wind, moisture, salt). Levels I and II.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).
12.06 Transplant rooted propagation materials.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.03 Collect soil samples for laboratory analysis and interpret the results.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.08 Develop a fertilization schedule.
13.09 Determine rate of fertilizer application.
13.10 Apply fertilizer and soil amendments.
13.11 Apply special fertilization methods appropriate to a region or plant group.
13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.02 Identify sources and quality of water for irrigation.
14.03 Identify irrigation components and types of systems.
14.04 Install irrigation-system components.
14.05 Irrigate plants at recommended rates.
14.06 Identify procedures for measuring water-application rates.
14.07 Repair irrigation systems.
14.08 Identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.
15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.02 Identify and select chemical growth regulators.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.
17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment preoperational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.
18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.

STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture

COURSE CREDIT: 1

PROGRAM TITLE: Environmental Horticulture

PROGRAM NUMBER: 8121500

COURSE TITLE: Agriscience Foundations

COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.

AGRISCIENCE FOUNDATIONS - Continued

09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

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STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture

COURSE CREDIT: 1

PROGRAM TITLE: Environmental Horticulture

PROGRAM NUMBER: 8121500

COURSE TITLE: Introductory Horticulture

COURSE NUMBER: 8121510

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of career opportunities; global importance of agriculture; plant classification; propagation; growing media; nutritional needs; fertilization; irrigation; pest identification; pest control, pruning; plant installation; transplanting; safe hand-tool use; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level I.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level I.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.10 Apply fertilizer and soil amendments.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.05 Irrigate plants at recommended rates.

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment preoperational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Environmental Horticulture	PROGRAM NUMBER:	8121500
COURSE TITLE:	Horticulture Science	COURSE NUMBER:	8121520

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of industry regulations; plant classification; plant transportation; soil sampling and analysis; fertilizer calculations; recording keeping; irrigation components, water quality; drainage; integrated pest management; pesticide safety and regulations; equipment calibration; chemical growth regulators; xeriscaping; integrated landscape management; safe use of power equipment; record keeping; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.04 Describe regulations that affect the horticulture industry.
10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level II.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level II.

12.0 PROPAGATE PLANTS--The student will be able to:

- 12.06 Transplant rooted propagation materials.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

- 13.03 Collect soil samples for laboratory analysis and interpret the results.
- 13.08 Develop a fertilization schedule.
- 13.09 Determine rate of fertilizer application.
- 13.11 Apply special fertilization methods appropriate to a region or plant group.
- 13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

- 14.02 Identify sources and quality of water for irrigation.
- 14.03 Identify irrigation components and types of systems.
- 14.04 Install irrigation system components.
- 14.06 Identify procedures for measuring water application rates.
- 14.07 Repair irrigation systems.
- 14.08 Identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

- 15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
- 15.06 Interpret information on a pesticide or agricultural chemical label.
- 15.07 Describe symptoms of pesticide poisoning and identify required first aid.
- 15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
- 15.09 Store, select, mix, and apply pesticides safely according to the product label.
- 15.10 Clean, adjust, and calibrate spray equipment.
- 15.11 Maintain pesticide records.

16.0 CONTROL PLANT GROWTH--The student will be able to:

- 16.02 Identify and select chemical growth regulators.
- 16.05 Prune plants safely and sterilize tools.
- 16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

- 17.04 Describe principles of xeriscaping.
- 17.05 Describe principles of integrated landscape management.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

- 18.03 Identify, maintain, and safely operate small gasoline engines.
- 18.04 Identify, maintain, and safely operate power equipment.
- 18.05 Maintain equipment operation and service records.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

- 19.05 Demonstrate knowledge of how to make job changes.
- 19.06 Identify documents that may be required when applying for a job.
- 19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
- 19.08 Demonstrate competence in job-interview techniques.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Farm Production Operations

CODE NUMBER: Secondary ________ Postsecondary AEB0139

Florida CIP 0101.010400

SECONDARY SCHOOL CREDITS ______ COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): _____6-9 _____9-12 ____Postsecondary Adult Vocational

______ Postsecondary Vocational _X_ Other 30,31

CERTIFICATION COVERAGE: VOC AGRI @4
AGRI @2 @4
AGRI PROD @7 G
AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as farmers (7100256), farmers, general (421.161-010), farmers, vegetable (402.161-014), farmers, field crop (404.161-010), livestock ranchers (410.161-018), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to manage production on a farm or ranch, including instruction in farm enterprise analysis, taxes, production, financing, performance records, contracts and marketing. Subject matter also includes plant and animal nutrition, equipment operation and maintenance, land preparation, fertilization, irrigation, and pest control, as well as leadership, employability, communication and human relations skills.

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, tractors and field equipment, power chemical applicators, irrigation equipment and animal health care instruments.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 9.0, Language 9.0, Reading 9.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

III. SPECIAL NOTE: Continued

To be transferable statewide between institutions, this program/course must have been reviewed, and a "transfer value" assigned the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific program or course articulation agreements with each other.

The typical length of this program for the average achieving student is 900 hours.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Select and breed livestock.
02. Formulate feeds and feed livestock.
03. Keep and analyze production records.
04. Prevent and treat animal and plant diseases and parasites.
05. Construct, repair and maintain farm facilities.
06. Operate, maintain and repair agricultural production equipment.
07. Market agricultural crops and livestock.
08. Determine sources and methods of agricultural financing.
09. Prepare land for crops.
10. Select and plant crops.
11. Determine plant nutrient requirements and apply fertilizers.
12. Irrigate crops.
13. Control weeds.
14. Observe local, state and federal rules and regulations relative to operation.
15. Demonstrate leadership, employability, communication and human relations skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture SECONDARY NUMBER: ____________
PROGRAM TITLE: Farm Production Operations POSTSECONDARY NUMBER: AEB0139

01.0 SELECT AND BREED LIVESTOCK--The student will be able to:

01.01 Select quality sires and dams.
01.02 Evaluate desirable conformation characteristics.
01.03 Develop a breeding program and schedule.
01.04 Select livestock suited for enterprise.
01.05 Cull undesirable or unproductive animals.
01.06 Determine causes of animal infertility.

02.0 FORMULATE FEEDS AND FEED LIVESTOCK--The student will be able to:

02.01 Determine nutritional requirements of livestock.
02.02 Recognize quality feed materials.
02.03 Balance a ration.
02.04 Prepare a feeding schedule.
02.05 Determine mineral and feed supplement requirements.
02.06 Provide for winter rations.
02.07 Determine gain/feed ratio and cost per pound of gain.
02.08 Estimate feed requirements for operation.

03.0 KEEP AND ANALYZE PRODUCTION RECORDS--The student will be able to:

03.01 Keep and analyze production, performance and/or breeding records.
03.02 Prepare a farm tax return.
03.03 Keep fertilization and pesticide use records.
03.04 Keep equipment maintenance records.
03.05 Determine cost efficiency of operations.
03.06 Maintain labor and personnel records.
03.07 Prepare an annual budget.
03.08 Determine sources and kinds of farm insurance required.
03.09 Determine credit, cash flow and investment returns.
03.10 Keep inventory of crops, livestock and equipment.

04.0 PREVENT AND TREAT ANIMAL AND PLANT DISEASES AND PARASITES--The student will be able to:

04.01 Identify major insect, diseases and pests of crops and livestock.
04.02 Develop a system of pest control management.
04.03 Safely apply pesticides.
04.04 Interpret information and instructions on pesticide or medication containers.
04.05 Direct disposal of pesticide containers.

05.0 CONSTRUCT, REPAIR AND MAINTAIN FARM FACILITIES--The student will be able to:

05.01 Equip and maintain a general farm shop.
05.02 Plan and install electrical wiring and equipment.
05.03 Plan and construct a farm structure.
05.04 Determine bill of materials for a farm construction project.
05.05 Form and pour concrete.
05.06 Plan, build and repair fences, gates and pens.
05.07 Plan a general maintenance schedule for facilities and equipment.

06.0 OPERATE, MAINTAIN AND REPAIR AGRICULTURAL PRODUCTION EQUIPMENT--The student will be able to:

06.01 Assess needs for the purchase of new or replacement equipment.
06.02 Maintain fluids in equipment.
06.03 Maintain tires, batteries and coolant systems on all equipment and vehicles.
06.04 Operate, adjust and maintain small gasoline engines.

06.0 OPERATE, MAINTAIN AND REPAIR AGRICULTURAL PRODUCTION EQUIPMENT--The student will be able to: Continued

06.05 Replace hoses, belts and tires.
06.06 Cut and weld with arc and oxy-acetylene equipment.
06.07 Develop a general equipment maintenance schedule.
06.08 Observe safety procedures.
06.09 Select, operate and maintain irrigation equipment.

07.0 MARKET AGRICULTURAL CROPS AND LIVESTOCK--The student will be able to:

07.01 Secure and interpret market information.
07.02 Select marketing channels for greatest profit.
07.03 Interpret marketing agreements.
07.04 Market products.
07.05 Select or provide for product transportation.
07.06 Determine yield or grade of product to be marketed.

08.0 DETERMINE SOURCES AND METHODS OF AGRICULTURAL FINANCING--The student will be able to:

08.01 Analyze major sources of production credit.
08.02 Analyze sources of credit for capital items and real estate.
08.03 Prepare a case using accepted forms for obtaining credit from farm lending institutions.

09.0 PREPARE LAND FOR CROPS--The student will be able to:

09.01 Prepare a land use plan.
09.02 Determine land capability of farm or ranch.
09.03 Develop approved soil and water conservation measures.
09.04 Prepare soil for crops.

10.0 SELECT AND PLANT CROPS--The student will be able to:

10.01 Select crop varieties best suited for land, market and type of farming operation.
10.02 Determine seeding/planting rate and spacing.
10.03 Operate, calibrate and adjust planting equipment.
10.04 Plant crops.
10.05 Select appropriate cultivation practices for crop.

11.0 DETERMINE PLANT NUTRIENT REQUIREMENTS AND APPLY FERTILIZERS--The student will be able to:

11.01 Analyze results of soil or plant tissue tests.
11.02 Identify nutrient deficiencies in crops.
11.03 Calculate fertilization rates and costs/acre.
11.04 Determine method of distributing fertilizer materials.
11.05 Calibrate fertilizer applicator.
11.06 Interpret information on fertilizer label.
11.07 Apply fertilizer.
11.08 Maintain fertilizer application equipment.

12.0 IRRIGATE CROPS--The student will be able to:

12.01 Identify moisture stress in plants.
12.02 Determine irrigation needs.
12.03 Interpret water quality analysis reports.
12.04 Operate irrigation equipment.
12.05 Install and maintain irrigation system.
12.06 Observe local stream laws and ground water policies.

13.0 CONTROL WEEDS--The student will be able to:

13.01 Identify major weed pest common to local crops.
13.02 Evaluate weed control practices for effectiveness.
13.03 Apply herbicides safely and efficiently.
13.04 Control weeds with cultivation equipment.
13.05 Select appropriate herbicide for crop and weed pests.

14.0 OBSERVE LOCAL, STATE AND FEDERAL RULES AND REGULATIONS RELATIVE TO OPERATION--The student will be able to:

14.01 List agencies responsible for inspecting and regulating operation or product.
14.02 Secure necessary inspections, certificates and registrations.
14.03 Maintain a file of current rules and regulations.
14.04 List reasons for the necessity of inspections, certifications and regulations.

15.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION AND HUMAN RELATIONS SKILLS--The student will be able to:

15.01 Conduct a job search.
15.02 Secure information about a job.
15.03 Identify documents that may be required when applying for a job.
15.04 Complete a job application form correctly.
15.05 Demonstrate competence in job interview techniques.
15.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
15.07 Identify acceptable work habits.
15.08 Demonstrate knowledge of how to make job changes appropriately.
15.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Fish and Seafood Production

CODE NUMBER: Secondary ________ Postsecondary WIS0209

Florida CIP 0103.030100

SECONDARY SCHOOL CREDITS ______ COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): _____6-9 _____9-12 X Postsecondary Adult Vocational

______ Postsecondary Vocational X Other 30.31

CERTIFICATION COVERAGE:
VOC AGRI @4
AGRI @2 @4
AGRI RES @7 G
AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as fishers, net (441.684-010), fishers, crab (441.684-014), fishers, oyster (446.684-014), fish farmers (446.161-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to engage in fishing for commercial purposes and to fish resources to optimize production. Subject matter also includes fishing vessels, fishing gear and nets, laws, species identification, processing, marketing, maintenance of equipment and facilities, safety, record keeping, as well as leadership, employability, communication and human relations skills.

II. LABORATORY ACTIVITIES: Shop and marine laboratory activities are an integral part of this program including the safe use of mechanics' hand tools portable power tools, fishing vessels, fishing nets and gear, navigation instruments, and safety equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

III. SPECIAL NOTE: Continued

To be transferable statewide between institutions, this program/course must have been reviewed, and a "transfer value" assigned the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific program or course articulation agreements with each other.

The typical length of this program for the average achieving student is 900 hours.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Identify commercial freshwater and marine species.
02. Observe state and federal laws and regulations relative to the industry.
03. Plan and observe construction of ponds, structures and conveniences.
04. Monitor and maintain required water quality standards.
05. Select and stock fish and seafood species.
06. Perform cultural practices that increase growth and production.
07. Recognize and control diseases, pests and predators.
08. Operate and maintain fishing vessels and other equipment.
09. Harvest fish and seafood.
10. Process fish and seafood.
11. Observe safety and sanitary practices.
12. Market fish and seafood.
13. Manage production and harvesting system.
14. Demonstrate leadership, employability, communication, human and public relations skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture SECONDARY NUMBER: ________
PROGRAM TITLE: Fish and Seafood Production POSTSECONDARY NUMBER: WIS0209

01.0 IDENTIFY COMMERCIAL FRESHWATER AND MARINE SPECIES--The student will be able to:

01.01 Identify species of commercial importance in the local and surrounding area: (a) tropical fish, (b) catfish, (c) oysters, (d) mullet, (e) crabs, (f) shrimp, and (g) others.
01.02 Determine life cycles and growth habits of species identified in 01.01.
01.03 Identify species of interest to the commercial sport fishing industry.

02.0 OBSERVE STATE AND FEDERAL LAWS AND REGULATIONS RELATIVE TO THE INDUSTRY--The student will be able to:

02.01 Identify and observe laws and regulations affecting the fish and seafood industry in the area.
02.02 Obtain required permits, licenses, leases, etc., for fish and seafood production/harvesting.
02.03 Identify agencies regulating the industry.
02.04 Identify and observe laws and regulations affecting the commercial sport fishing industry.

03.0 PLAN AND OBSERVE CONSTRUCTION OF PONDS, STRUCTURES AND CONVENIENCES--The student will be able to:

03.01 Plan ponds, structures and conveniences for growing freshwater species.
03.02 Plan structures and conveniences to encourage growth of desired saltwater species.
03.03 Select freshwater and saltwater sites for production.
03.04 Observe/participate in construction of ponds, structures and conveniences for producing/encouraging growth of fish and seafood.

04.0 MONITOR AND MAINTAIN REQUIRED WATER QUALITY STANDARDS--The student will be able to:

04.01 Explain, monitor and maintain freshwater quality standards for production of commercially important local species.
04.02 Explain and monitor saltwater quality standards required for production/harvesting commercially important local species.
04.03 Identify sources of pollution for fresh and saltwater production/harvesting areas.
04.04 Identify agencies regulating water standards and pollution reporting procedures.
04.05 Explain procedures for removing pollutants from oysters and other species where practicable.
04.06 Determine requirements and maintain proper oxygen and chemical levels where possible.

05.0 SELECT AND STOCK FISH AND SEAFOOD SPECIES--The student will be able to:

05.01 Explain advantages and disadvantages of different species.
05.02 Select the most commercially advantageous species for stocking available sites.
05.03 Remove/destroy non-commercial/trash fish and other undesirable organisms where possible, using practices approved by regulations.
05.04 Determine sizes and stocking rates for given locations.
05.05 Purchase/obtain proper size specie for stocking.
05.06 Transfer to stocking site and release without harming.

06.0 PERFORM CULTURAL PRACTICES THAT INCREASE GROWTH AND PRODUCTION--The student will be able to:

06.01 Recognize and learn growth habits of aquatic plants.
06.02 Fertilize/encourage growth of plants desirable for fish/seafood production.
06.03 Remove/destroy undesirable aquatic plants, using recommended practices.
06.04 Determine feeds to use for different species.
06.05 Determine feeding rates and methods of feeding for different species on different sites.

07.0 RECOGNIZE AND CONTROL DISEASES, PESTS AND PREDATORS--The student will be able to:

07.01 Identify diseases, pests and predators of commercially important local species.
07.02 Determine methods recommended to control problems identified in 07.01.
07.03 Perform methods of control identified in 07.02.

08.0 OPERATE AND MAINTAIN FISHING VESSELS AND OTHER EQUIPMENT--The student will be able to:

08.01 Identify and select boats, nets, and other equipment required to harvest species selected by the instructor.
08.02 Figure costs and purchases procedures for obtaining necessary equipment.
08.03 Correctly operate boats and other equipment used in harvesting.
08.04 Explain laws and regulations regulating operations of boats and equipment.
08.05 Maintain and perform basic repairs on engines, boats and equipment.
08.06 Navigate in coastal waters according to regulations and safety practices.

09.0 HARVEST FISH AND SEAFOOD--The student will be able to:

09.01 Determine harvesting practices recommended for commercially desirable freshwater and marine species, according to type of marketing outlet.
09.02 Determine equipment needed for harvesting different species.
09.03 Determine labor and financial requirements for harvesting.
09.04 Determine legal and/or commercially desirable months for harvest.
09.05 Harvest commercially valuable fish and seafood species, using recommended methods and equipment.

10.0 PROCESS FISH AND SEAFOOD--The student will be able to:

10.01 Determine processing practices recommended for commercially valuable species, according to markets available.
10.02 Determine equipment needed for processing different species.
10.03 Determine financial and labor requirements for processing.
10.04 Determine legal and commercially desirable methods of processing.
10.05 Process commercially valuable fish and seafood species, using recommended methods and equipment.

11.0 OBSERVE SAFETY AND SANITARY PRACTICES--The student will be able to:

11.01 Recognize and observe safety practices necessary in producing/harvesting, processing, transporting and marketing fish and seafood and/or fish and seafood products.
11.02 Recognize and observe recommended/legally required sanitary practices in the production/harvesting, processing, transportation and marketing of fish and seafood and/or fish and seafood products.

12.0 MARKET FISH AND SEAFOOD--The student will be able to:

12.01 Locate profitable markets for fish, seafood, and fish and seafood products.
12.02 Package and transport fish, seafood, and fish and seafood products: (a) live, (b) fresh, (c) frozen, (d) other.
12.03 Determine legal and commercially desirable methods of transporting and marketing.
12.04 Market fish, seafood, and/or their products.

13.0 MANAGE PRODUCTION AND HARVESTING SYSTEMS--The student will be able to:

13.01 Demonstrate basic bookkeeping skills.
13.02 Determine cost of production/harvesting and profitability of different systems.
13.03 Determine procedures and costs for acquiring the land/water, machinery, equipment structures, etc., needed for operation specified by the instructor.
13.04 Complete forms related to: (a) land purchases, (b) water leases, (c) permits, (d) licenses (e) financial loans, (f) insurance, (g) others specified by the instructor.
13.05 Keep records related to: (a) property ownership, (b) equipment acquired, (c) equipment repair and maintenance, (d) income and expense, (e) employee time and pay, (f) income tax and social security, (g) insurance, (h) others specified by instructor.
13.06 Operate a production/harvesting system.

14.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION AND HUMAN RELATIONS SKILLS--The student will be able to:

14.01 Conduct a job search.
14.02 Secure information about a job.
14.03 Identify documents that may be required when applying for a job.
14.04 Complete a job application form correctly.
14.05 Demonstrate competence in job interview techniques.
14.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
14.07 Identify acceptable work habits.
14.08 Demonstrate knowledge of how to make job changes appropriately.
14.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Floriculture

CODE NUMBER: Secondary 8121000 Postsecondary ORV0110

Florida CIP 0101.060300

SECONDARY SCHOOL CREDITS 6 COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____6-9 ____9-12 X Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:	10-12, 30,31	VOC AGRI @4 HORTICULT #7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 HORTICULT @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment for as greenhouse superintendents (405.131-010), plant propagators (405.361-010), horticultural workers II (405.687-014), supervisors, horticultural-specialty farming (405.131-010), horticultural-specialty grower, inside (405.161-018) or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to produce flowers, foliage, and related plant materials in fields and greenhouses for ornamental purposes, and to arrange, package, and market these materials. Subject matter also includes preparation of planting media, propagation, pruning, irrigation, disease and insect control, harvesting, marketing, maintenance and operation of equipment, as well as employability, communication and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8121510	Introductory Horticulture
8121520	Horticultural Science
8121010	Floriculture 1
8121020	Floriculture 2
8121030	Floriculture 3

II. LABORATORY ACTIVITIES: Agricultural shop and floricultural laboratory activities are an integral part of this program including the safe use of mechanics hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, tractors and field equipment, irrigation equipment, chemical applicators and sprayers.

III. SPECIAL NOTE: FFA (secondary) and the National Post-secondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

III. SPECIAL NOTE: Continued

Because of the production and marketing cycle of the floriculture industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

The asterisk (*) identifies student performance standards that are additions to the core and are unique to this program.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the horticulture industry.
11. Identify and classify plants.
12. Propagate plants.
13. Identify growing media and apply fertilizers.
14. Irrigate plants and turf.
15. Control pests.
16. Control plant growth.
17. Harvest, transport, and install plant materials.
18. Operate, repair, and maintain tools and equipment.
19. Demonstrate leadership, employability, communications, and human-relations skills.
20. Describe plant physiology and growth.
21. Prepare growing media and seedbeds.
22. Irrigate floriculture crops.
23. Harvest, store, package and ship floriculture materials
24. Market floriculture materials.

FLORICULTURE - Continued

25. Fertilize plant materials.
26. Maintain and analyze records.
27. Demonstrate proficiency in applying basic mathematics, science and communication skills to agriculture problem solving.

STUDENT PERFORMANCE STANDARDS　　EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture　　SECONDARY NUMBER: 8121000

PROGRAM TITLE: Floriculture　　POSTSECONDARY NUMBER: ORV0110

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion)
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.
* 07.08 Maintain job records, daily log sheets, and inventory.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

- 10.01 Describe the importance of horticulture to the American and global economies.
- 10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
- 10.03 Describe the importance of horticulture to the environment.
- 10.04 Describe regulations that affect the horticulture industry.
- 10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

- 11.01 Identify plants by scientific and common names. Level I.
- 11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level I.
- * 11.03 Classify plants as monocots or dicots.
- * 11.04 Classify plants as annuals, biennials, and perennials.
- * 11.05 Identify plants appropriate to a region.
- * 11.06 Classify plants according to growth habit.

12.0 PROPAGATE PLANTS--The student will be able to:

- 12.01 Identify propagating and growing facilities and structures.
- 12.02 Prepare propagation media.
- 12.03 Select and collect propagation materials.
- 12.04 Demonstrate propagation by sexual and asexual methods.
- 12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).
- 12.06 Transplant rooted propagation materials.
- * 12.07 Identify sexual and asexual plant propagation methods.
- * 12.08 Prepare a rooting bed.
- * 12.09 Prepare propagation materials (seeds, cuttings, etc.) for planting.
- * 12.10 Apply growth stimulants to propagation materials.
- * 12.11 Demonstrate sanitation and safety practices when propagating.
- * 12.12 Prepare flats and seedbeds and plant seeds.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

- 13.01 Identify soil and media materials.
- 13.02 Identify nutritional needs of plants.
- 13.03 Collect soil samples for laboratory analysis and interpret the results.
- 13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
- 13.05 Identify types and kinds of fertilizers.
- 13.06 Identify methods of distributing fertilizers.
- 13.07 Interpret analysis of fertilizer from information on tag or container.
- 13.08 Develop a fertilization schedule.
- 13.09 Determine rate of fertilizer application.
- 13.10 Apply fertilizer and soil amendments.
- 13.11 Apply special fertilization methods appropriate to a region or plant group.
- 13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

- 14.01 Identify water needs of plants.
- 14.02 Identify sources and quality of water for irrigation.
- 14.03 Identify irrigation components and types of systems.
- 14.04 Install irrigation system components.
- 14.05 Irrigate plants at recommended rates.
- 14.06 Identify procedures for measuring water application rates.
- 14.07 Repair irrigation systems.
- 14.08 Identify drainage components for different types of drainage systems.

* 14.09 Install irrigation systems with control valves and clocks.
* 14.10 Install drainage systems and identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.
15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.
* 15.12 Report insect and disease damage.
* 15.13 Interpret and use spray compatibility chart.
* 15.14 Determine appropriate time to apply chemicals.
* 15.15 Identify insect and insect-like damage and causal agents.
* 15.16 Select proper controls (biological, chemical. and cultural) for insects, diseases, and weeds.
* 15.17 Determine appropriate time, frequency, method, and amount of application of controls.
* 15.18 Identify pesticide, herbicide, and chemical spray damage.
* 15.19 Identify vertebrate damage and causal agents.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.02 Identify and select chemical growth regulators.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.
* 16.07 Pinch and disbud flowering plants.
* 16.08 Apply growth-regulating chemicals.
* 16.09 Install black cloth to regulate photoperiod.
* 16.10 Apply shading compound to greenhouse structure.
* 16.11 Prune plants to achieve desired growth.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.
17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.
* 17.06 Install ornamental plants per a landscape plan.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment preoperational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.
18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.
* 18.06 Identify, operate, and maintain tractor and power equipment.
* 18.07 Load, secure, and transport equipment.

* 18.08 Demonstrate safety precautions while working with tools and equipment.
* 18.09 Determine equipment needs for the job.
* 18.10 Maintain electric motors and equipment.
* 18.11 Order parts and supplies.
* 18.12 Perform simple plumbing and electrical repairs.
* 18.13 Build or repair frames, benches, and other greenhouse or field structures.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.
* 19.09 Conduct a job search.
* 19.10 Secure information about a job.

20.0 DESCRIBE PLANT PHYSIOLOGY AND GROWTH--The student will be able to:

20.01 Describe woody and herbaceous plants.
20.02 Identify parts of the plant.
20.03 List the requirements for healthy plant growth.
20.04 Identify taproot and fibrous root system.
20.05 Identify the difference between evergreen and deciduous plants.

21.0 PREPARE GROWING MEDIA AND SEEDBEDS--The student will be able to:

21.01 Sterilize rooting, potting and growing media.
21.02 Adjust Ph and nutritional levels of media.
21.03 Prepare planting beds and sites.
21.04 Fill and level benches and pots with media.
21.05 Demonstrate sanitation practices when handling and storing plant media materials.
21.06 Construct and repair drainage ditches in field growing area.

22.0 IRRIGATE FLORICULTURE PLANTS--The student will be able to:

22.01 Identify and use various types of irrigation components and systems.
22.02 Set up irrigation system for propagation area.
22.03 Set up irrigation system for greenhouse or enclosed structure
22.04 Set up irrigation system for shadehouse.
22.05 Set up irrigation system for retail display area.
22.06 Set up irrigation system for field growing area.
22.07 Maintain and repair irrigation systems.

23.0 HARVEST, STORE,PACKAGE AND SHIP FLORICULTURE MATERIALS--The student will be able to:

23.01 Select, grade, and assemble floriculture materials.
23.02 Cut, count and bunch cut flowers and other plant materials.
23.03 Prepare for shipment, loading, and transporting harvest plant materials.
23.04 Use proper methods to preserve plant viability.
23.05 Demonstrate safety practices when harvesting, processing, and shipping nursery stock.

24.0 MARKET FLORICULTURE MATERIAL--The student will be able to:

24.01 Label and merchandise floriculture materials.
24.02 Maintain clean and attractive merchandising and display areas.
24.03 Use various advertising methods to promote sales.

24.04 Take telephone orders.
24.05 Use sales catalog.
24.06 Greet customers.
24.07 Describe care and use of product to customer.

25.0 FERTILIZE PLANT MATERIALS--The student will be able to:

25.01 Collect soil and leaf tissue samples for analysis.
25.02 Interpret and evaluate the results of soil and leaf tissue analysis.
25.03 Demonstrate proper handling and storage of fertilizers, observing safety precautions.

26.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

26.01 Analyze and maintain production and sales records.
26.02 Determine plant production costs.
26.03 Prepare a budget.
26.04 Prepare and maintain financial records.
26.05 Maintain current plant inventory.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.01 Identify and interpret basic quantative information contained in agricultural charts, graphs and tables.
27.02 Identify basic concepts of physics in agricultural applications.
27.03 Identify basic concepts of chemistry in agricultural applications.
27.04 Identify basic biological concepts in agricultural applications.
27.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
27.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Floriculture	PROGRAM NUMBER:	8121000
COURSE TITLE:	Agriscience Foundations	COURSE NUMBER:	8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).

03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.

09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Floriculture
PROGRAM NUMBER: 8121000

COURSE TITLE: Introductory Horticulture
COURSE NUMBER: 8121510

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of career opportunities; global importance of agriculture; plant classification; propagation; growing media; nutritional needs; fertilization; irrigation; pest identification; pest control, pruning; plant installation; transplanting; safe hand-tool use; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level I.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level I.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.10 Apply fertilizer and soil amendments.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.05 Irrigate plants at recommended rates.

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment preoperational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Floriculture	PROGRAM NUMBER:	8121000
COURSE TITLE:	Horticulture Science	COURSE NUMBER:	8121520

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of industry regulations; plant classification; plant transportation; soil sampling and analysis; fertilizer calculations; recording keeping; irrigation components, water quality; drainage; integrated pest management; pesticide safety and regulations; equipment calibration; chemical growth regulators; xeriscaping; integrated landscape management; safe use of power equipment; record keeping; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

- 10.04 Describe regulations that affect the horticulture industry.
- 10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

- 11.01 Identify plants by scientific and common names. Level II.
- 11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level II.

12.0 PROPAGATE PLANTS--The student will be able to:

- 12.06 Transplant rooted propagation materials.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

- 13.03 Collect soil samples for laboratory analysis and interpret the results.
- 13.08 Develop a fertilization schedule.
- 13.09 Determine rate of fertilizer application.
- 13.11 Apply special fertilization methods appropriate to a region or plant group.
- 13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

- 14.02 Identify sources and quality of water for irrigation.
- 14.03 Identify irrigation components and types of systems.
- 14.04 Install irrigation system components.
- 14.06 Identify procedures for measuring water application rates.
- 14.07 Repair irrigation systems.
- 14.08 Identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

- 15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
- 15.06 Interpret information on a pesticide or agricultural chemical label.
- 15.07 Describe symptoms of pesticide poisoning and identify required first aid.
- 15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
- 15.09 Store, select, mix, and apply pesticides safely according to the product label.
- 15.10 Clean, adjust, and calibrate spray equipment.
- 15.11 Maintain pesticide records.

16.0 CONTROL PLANT GROWTH--The student will be able to:

- 16.02 Identify and select chemical growth regulators.
- 16.05 Prune plants safely and sterilize tools.
- 16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

- 17.04 Describe principles of xeriscaping.
- 17.05 Describe principles of integrated landscape management.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

- 18.03 Identify, maintain, and safely operate small gasoline engines.
- 18.04 Identify, maintain, and safely operate power equipment.
- 18.05 Maintain equipment operation and service records.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Floriculture	PROGRAM NUMBER:	8121000
COURSE TITLE:	Floriculture 1	COURSE NUMBER:	8121010

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of plant classification, propagation, irrigation, harvesting, transporting and installing plant materials. Competencies also include plant physiology and basic problem solving skills.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.03 Classify plants as monocots or dicots.
11.04 Classify plants as annuals, biennials, and perennials.
11.05 Identify plants appropriate to a region.
11.06 Classify plants according to growth habit.

12.0 PROPAGATE PLANTS--The student will be able to:

12.07 Identify sexual and asexual plant propagation methods.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.09 Install irrigation systems with control valves and clocks.
14.10 Install drainage systems and identify drainage components for different types of drainage systems.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.06 Install ornamental plants per a landscape plan.

20.0 DESCRIBE PLANT PHYSIOLOGY AND GROWTH--The student will be able to:

20.01 Describe woody and herbaceous plants.
20.02 Identify parts of the plant.
20.03 List the requirements for healthy plant growth.
20.04 Identify taproot and fibrous root system.
20.05 Identify the difference between evergreen and deciduous plants.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.01 Identify and interpret basic quantative information contained in agricultural charts, graphs and tables.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Floriculture	PROGRAM NUMBER:	8121000
COURSE TITLE:	Floriculture 2	COURSE NUMBER:	8121020

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of management, economics, pest control, machinery operation and maintenance, human relations skills, growing media, harvesting, storing, packaging and basic chemistry and physics topics associated with floriculture.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.08 Maintain job records, daily log sheets, and inventory.

12.0 PROPAGATE PLANTS--The student will be able to:

12.08 Prepare a rooting bed.
12.09 Prepare propagation materials (seeds, cuttings, etc.) for planting.
12.10 Apply growth stimulants to propagation materials.
12.11 Demonstrate sanitation and safety practices when propagating.
12.12 Prepare flats and seedbeds and plant seeds.

15.0 CONTROL PESTS--The student will be able to:

15.12 Report insect and disease damage.
15.13 Interpret and use spray compatibility chart.
15.14 Determine appropriate time to apply chemicals.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.06 Identify, operate, and maintain tractor and power equipment.
18.07 Load, secure, and transport equipment.
18.08 Demonstrate safety precautions while working with tools and equipment.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.09 Conduct a job search.
19.10 Secure information about a job.

21.0 PREPARE GROWING MEDIA AND SEEDBEDS--The student will be able to:

21.01 Sterilize rooting, potting and growing media.
21.02 Adjust Ph and nutritional levels of media.
21.03 Prepare planting beds and sites.
21.04 Fill and level benches and pots with media.
21.05 Demonstrate sanitation practices when handling and storing plant media materials.
21.06 Construct and repair drainage ditches in field growing area.

23.0 HARVEST, STORE,PACKAGE AND SHIP FLORICULTURE MATERIALS--The student will be able to:

23.01 Select, grade, and assemble floriculture materials.
23.02 Cut, count and bunch cut flowers and other plant materials.
23.03 Prepare for shipment, loading, and transporting harvest plant materials.
23.04 Use proper methods to preserve plant viability.
23.05 Demonstrate safety practices when harvesting, processing, and shipping nursery stock.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.02 Identify basic concepts of physics in agricultural applications.
27.03 Identify basic concepts of chemistry in agricultural applications.
27.04 Identify basic biological concepts in agricultural applications.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Floriculture
PROGRAM NUMBER: 8121000

COURSE TITLE: Floriculture 3
COURSE NUMBER: 8121030

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of pest control, equipment repair and maintenance, irrigation, marketing, fertilization, record keeping and basic communications skills.

15.0 CONTROL PESTS--The student will be able to:

15.15 Identify insect and insect-like damage and causal agents.
15.16 Select proper controls (biological, chemical. and cultural) for insects, diseases, and weeds.
15.17 Determine appropriate time, frequency, method, and amount of application of controls.
15.18 Identify pesticide, herbicide, and chemical spray damage.
15.19 Identify vertebrate damage and causal agents.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.07 Pinch and disbud flowering plants.
16.08 Apply growth-regulating chemicals.
16.09 Install black cloth to regulate photoperiod.
16.10 Apply shading compound to greenhouse structure.
16.11 Prune plants to achieve desired growth.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.09 Determine equipment needs for the job.
18.10 Maintain electric motors and equipment.
18.11 Order parts and supplies.
18.12 Perform simple plumbing and electrical repairs.
18.13 Build or repair frames, benches, and other greenhouse or field structures.

22.0 IRRIGATE FLORICULTURE PLANTS--The student will be able to:

22.01 Identify and use various types of irrigation components and systems.
22.02 Set up irrigation system for propagation area.
22.03 Set up irrigation system for greenhouse or enclosed structure
22.04 Set up irrigation system for shadehouse.
22.05 Set up irrigation system for retail display area.
22.06 Set up irrigation system for field growing area.
22.07 Maintain and repair irrigation systems.

24.0 MARKET FLORICULTURE MATERIAL--The student will be able to:

24.01 Label and merchandise floriculture materials.
24.02 Maintain clean and attractive merchandising and display areas.
24.03 Use various advertising methods to promote sales.
24.04 Take telephone orders.
24.05 Use sales catalog.
24.06 Greet customers.
24.07 Describe care and use of product to customer.

25.0 FERTILIZE PLANT MATERIALS--The student will be able to:

25.01 Collect soil and leaf tissue samples for analysis.
25.02 Interpret and evaluate the results of soil and leaf tissue analysis.
25.03 Demonstrate proper handling and storage of fertilizers, observing safety precautions.

26.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

26.01 Analyze and maintain production and sales records.
26.02 Determine plant production costs.
26.03 Prepare a budget.
26.04 Prepare and maintain financial records.
26.05 Maintain current plant inventory.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
27.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Forest Technology

CODE NUMBER: Secondary Postsecondary ____________

Florida CIP 0103.050600

SECONDARY SCHOOL CREDITS _____ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS _____

APPLICABLE LEVEL(S): ____7-9 ____9-12 ____Postsecondary Adult Vocational

X Postsecondary Vocational ____ Other ____________

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as forester, conservation scientist (24302076), forest technicians, forest ecologists (040.061-030), silviculturists (040.061-050), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to manage and administer forests and forest lands. Instruction also includes silviculture, forest protection, planning, economics, forest mensuration, surveying, photogrammetry, human relations, law and dendrology.

II. LABORATORY ACTIVITIES: Forest laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, forest fire control equipment, forest measurement instruments, forest tractors and field equipment, and chemical applicators.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Survey and measure forests.
02. Assist in preparation of and implement forest management plans.
03. Supervise the protection of forests and woodlands.
04. Evaluate the forest ecosystem.
05. Analyze contracts, leases and other legal documents.
06. Keep and analyze records.
07. Analyze technical information and incorporate into management of operation.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to: Continued

08. Supervise and train employees.
09. Demonstrate leadership, communication, employability, public and human relations skills.
10. Market wood products.

CF/11/07/91

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: ____________

PROGRAM TITLE: Forest Technology POSTSECONDARY NUMBER: 0103.050600

01.0 SURVEY AND MEASURE FORESTS--The student will be able to:

01.01 Identify parcels of land based on legal descriptions.
01.02 Interpret aerial photographs.
01.03 Survey forest boundaries and acreage.
01.04 Produces a finished map of forested areas.
01.05 Determine forest topography.
01.06 Operate current tree measuring devices.
01.07 Estimate timber volumes by product.
01.08 Select and use tree volume tables.
01.09 Demonstrate use of the wedge prism.
01.10 Develop a timber stand growth projection.
01.11 Demonstrate sampling techniques.
01.12 Determine forest stocking rate.

02.0 ASSIST IN PREPARATION OF AND IMPLEMENT FOREST MANAGEMENT PLANS--The student will be able to:

02.01 Evaluate forest data.
02.02 Assist in the formulation of management guidelines.
02.03 Conduct a timber stand improvement operation.
02.04 Plan and execute a prescribed burn.
02.05 Demonstrate various firing techniques for prescribed burning.
02.06 Select trees for removal in an improvement cut.
02.07 Select seed trees for natural regeneration.
02.08 Conduct site preparation.
02.09 Supervise tree planting operations.
02.10 Monitor timber harvesting operations.
02.11 Assist in the development of a multiple use management plan.
02.12 Implement practices to enhance wildlife habitat.
02.13 Construct and maintain recreational facilities.

03.0 SUPERVISE THE PROTECTION OF FORESTS AND WOODLANDS--The student will be able to:

03.01 Use fire as a management tool to reduce fire hazards, insects and diseases.
03.02 Select, use and maintain hand tools to suppress a fire.
03.03 Demonstrate the selection and use of mechanical equipment to suppress fire.
03.04 Demonstrate knowledge of environmental conditions affecting fire control and behavior.
03.05 Determine the damaging effects of wildfire on forest areas.
03.06 Demonstrate suppression burning.
03.07 Identify forest insects.
03.08 Describe insect population dynamics.
03.09 Describe stress agents of forest trees.
03.10 Prevent and control stress agents of forest trees.
03.11 Describe elements of chemical control and biological control of forest pests.
03.12 Recognize symptoms of insect and disease damage to forest trees.
03.13 Identify insecticides used to control forest insects.
03.14 Identify common forest tree diseases.
03.15 Determine the feasibility of controlling forest tree insects and diseases.
03.16 Demonstrate knowledge of maladies or tree disorders other than insects and diseases.
03.17 Demonstrate safe fire fighting techniques.

04.0 EVALUATE THE FOREST ECOSYSTEM--The student will be able to:

04.01 Identify and classify forest soils.
04.02 Identify and classify forest flora and fauna.
04.03 Identify forest types.
04.04 Identify commercial forest trees and their habitats.
04.05 Identify the interrelationship between site, flora and fauna.

05.0 ANALYZE CONTRACTS, LEASES AND OTHER LEGAL DOCUMENTS--The student will be able to:

05.01 Analyze a timber sale contract.
05.02 Analyze an equipment lease agreement.
05.03 Analyze a land lease agreement.
05.04 Determine sources of legal assistance.
05.05 Determine agencies or sources of legal information.
05.06 Obtain and maintain licenses, authorizations, certificates and registrations.
05.07 Observe federal, state and local laws and regulations relative to forestry.
05.08 Identify regulatory and assisting agencies.

06.0 KEEP AND ANALYZE RECORDS--The student will be able to:

06.01 Keep and maintain equipment service and maintenance records.
06.02 Maintain fiscal documents.
06.03 Maintain personnel records.
06.04 Record and report accidents.
06.05 Maintain a historical file on forestry practices.
06.06 Base decisions on the analysis of records.
06.07 Determine fixed costs, interest capitalization and depreciation schedules.
06.08 Maintain inventory records.

07.0 ANALYZE TECHNICAL INFORMATION AND INCORPORATE INTO MANAGEMENT OF OPERATION--The student will be able to:

07.01 Maintain a current file of technical information.
07.02 Improve skills and knowledge through seminars and workshops.
07.03 Interpret and apply technical information.
07.04 Identify governmental and private agencies providing technical assistance.

08.0 SUPERVISE AND TRAIN EMPLOYEES--The student will be able to:

08.01 Supervise timber markers, insect spray crews, hand planting and fire suppression crews.
08.02 Train and supervise employees in the use of tools and equipment used in the forest.
08.03 Instruct employees in policies and procedures.
08.04 Evaluate personnel.
08.05 Instruct and monitor employee safety.

09.0 DEMONSTRATE LEADERSHIP, COMMUNICATION, EMPLOYABILITY, PUBLIC AND HUMAN RELATIONS SKILLS--The student will be able to:

09.01 Conduct a job search.
09.02 Secure information about a job.
09.03 Identify documents that may be required when applying for a job.
09.04 Complete a job application form correctly.
09.05 Demonstrate competence in job interview techniques.
09.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
09.07 Identify acceptable work habits.
09.08 Demonstrate knowledge of how to make job changes appropriately.
09.09 Demonstrate acceptable employee health habits.

10.0 MARKET WOOD PRODUCTS--The student will be able to:

10.01 Identify potential markets for wood and wood products.
10.02 Obtain up-to-date marketing information.
10.03 Identify characteristics of timber harvesting systems.
10.04 Conduct a timber sale.
10.05 Identify equipment used in the processing of wood products.
10.06 Grade logs and lumber.
10.07 Identify methods of processing wood and wood products.
10.08 Scale pulpwood and saw logs.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Golf Course Operations

CODE NUMBER: Secondary ______ Postsecondary ______

Florida CIP 0102.041000

SECONDARY SCHOOL CREDITS ____ COLLEGE CREDITS _X_ POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____6-9 ____9-12 ____Postsecondary Adult Vocational

_X_ Postsecondary Vocational ____ Other ______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as golf course superintendents, superintendents, greens (406.137-014), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to supervise and manage the operations of a golf course. Instruction includes equipment management, pest control, fertilization, care, irrigation, record keeping, safety, laws and regulations, as well as leadership, public relations, human relations, employability and communication skills.

II. LABORATORY ACTIVITIES: Shop and golf course field laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, irrigation equipment, chemical applicators, power sprayers, greens and fairway maintenance equipment, oxy-acetylene torches, arc welders and tractors.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Supervise and manage the operation, maintenance and repair of golf course equipment.
02. Schedule irrigation and manage the design, installation and maintenance of golf course irrigation systems.
03. Prescribe, supervise and manage the application of agricultural chemicals for the prevention and control of pests.
04. Prescribe, supervise and manage the fertilization of turf and landscape.
05. Train and supervise employees in grooming and maintaining greens, tees, fairways, roughs and other areas.
06. Provide a safe environment for workers and patrons.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to: Continued

07. Keep and analyze maintenance, employee, equipment and inventory records.
08. Analyze and incorporate technical information into management practices
09. Observe local, state and federal laws and regulations relative to the operation.
10. Demonstrate leadership, communication, public relations, employability and human relations skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: __________

PROGRAM TITLE: Golf Course Operations POSTSECONDARY NUMBER: 0102.041000

01.0 SUPERVISE AND MANAGE THE OPERATION, MAINTENANCE AND REPAIR OF GOLF COURSE EQUIPMENT--The student will be able to:

01.01 Define the role of the golf course equipment mechanic in relation to the organization.
01.02 Determine the essential power, shop and hand tools required in a golf course mechanics shop.
01.03 Design a shop layout.
01.04 Compile a list of equipment required in the operation of an 18 hole golf course.
01.05 Demonstrate knowledge and use of golf course equipment.
01.06 Develop and supervise a system of preventive maintenance.
01.07 Sharpen and grind blades and cutting surfaces on all mowing equipment.
01.08 Trouble-shoot and repair golf course equipment.
01.09 Prepare surface and paint equipment.
01.10 Demonstrate gas and electric arc welding techniques on golf course equipment.
01.11 Compile, stock and manage a parts inventory.
01.12 Monitor and record the use of fuel, lubricants and consumable shop supplies.
01.13 Maintain a safe clean shop.
01.14 Maintain current catalogs for supplies and equipment.
01.15 Maintain tires and tire pressure on golf course equipment.
01.16 Train and supervise employees in the safe use of tools and equipment.

02.0 SCHEDULE IRRIGATION AND MANAGE THE DESIGN, INSTALLATION AND MAINTENANCE OF GOLF COURSE IRRIGATION SYSTEMS--The student will be able to:

02.01 Determine water requirements for a particular turf.
02.02 Analyze soil textures regarding their moisture holding capacities.
02.03 Analyze yearly, monthly and weekly rainfall amounts and distribution in various areas of Florida.
02.04 List the major water sources for irrigation purposes.
02.05 Operate and maintain hydraulically controlled, electrically controlled and thermo-hydraulically controlled irrigation valves.
02.06 Select and operate pumps used in sprinkler irrigation systems.
02.07 Illustrate the design, computations, pumping capacity and pipe sizing needed to irrigate a given operation.
02.08 Prepare a schedule for maintaining an irrigation system.
02.09 Schedule irrigation as required.
02.10 Manage drainage and run-off of excess rainfall.

03.0 PRESCRIBE, SUPERVISE AND MANAGE THE APPLICATION OF AGRICULTURAL CHEMICALS FOR THE PREVENTION AND CONTROL OF PESTS--The student will be able to:

03.01 Store and handle chemicals safely.
03.02 Recognize symptoms of agricultural chemical poisoning and apply first aid.
03.03 Dispose of chemical containers.
03.04 Read and interpret safety precautions provided on equipment and pesticide containers.
03.05 Instruct employees in the safe use of agricultural chemicals.
03.06 Select and check personal safety equipment.
03.07 Prepare proper proportions of chemicals and carrying agents.
03.08 Check application equipment for malfunction and wear.
03.09 Compute amounts of active ingredients of chemicals to be used.
03.10 Calibrate volume, pressure and output of equipment.
03.11 Weigh and measure chemicals.
03.12 Adjust height and width of equipment to achieve desired spray pattern.
03.13 Recognize symptoms of pesticide damage.
03.14 Identify fungi and bacteria.

03.0 PRESCRIBE, SUPERVISE AND MANAGE THE APPLICATION OF AGRICULTURAL CHEMICALS FOR THE PREVENTION AND CONTROL OF PESTS--The student will be able to: Continued

03.15 Recognize symptoms of insects and nematodes.
03.16 Identify common insects, weeds, diseases and other pests common to golf courses.
03.17 Clean and store sprayers.
03.18 Develop a pest control management program.

04.0 PRESCRIBE, SUPERVISE AND MANAGE THE FERTILIZATION OF TURF AND LANDSCAPE--The student will be able to:

04.01 Take soil and leaf samples for chemical analysis.
04.02 Adjust pH level of soil.
04.03 Interpret soil and tissue chemical analysis results.
04.04 Apply fertilizer in liquid form.
04.05 Interpret labels on fertilizer containers.
04.06 Apply dry fertilizers.
04.07 Identify nutrient deficiency symptoms in turf and landscape plants.
04.08 Determine kind and type fertilizer to apply.
04.09 Determine the nutrient requirements of various plants.
04.10 Determine amount of fertilizer to apply per given area.
04.11 Analyze cost of various formulations and methods of application.
04.12 Recognize fertilizer injury to plant materials.

05.0 TRAIN AND SUPERVISE EMPLOYEES IN GROOMING AND MAINTAINING GREENS, TEES, FAIRWAYS, ROUGHS AND OTHER AREAS--The student will be able to:

05.01 Supervise the mowing of greens, collars, roughs, aprons, and fairways.
05.02 Determine the placement and location of cups and tees.
05.03 Supervise the repair of divots.
05.04 Determine conditions necessary for verticuting and aerifying turf.
05.05 Supervise the care and maintenance of sand traps.
05.06 Prune trees and shrubs.
05.07 Supervise the maintenance of water hazards.
05.08 Develop maintenance schedule for grooming golf course.
05.09 Train and supervise employees in the care of golf courses.
05.10 Follow written and verbal instructions.

06.0 PROVIDE A SAFE ENVIRONMENT FOR WORKERS AND PATRONS--The student will be able to:

06.01 Provide instruction for the safe use of chemicals tools and equipment.
06.02 Inspect tools and equipment for safe operation.
06.03 Apply emergency first aid.
06.04 Post safety hazards.
06.05 Monitor employees work habits.
06.06 Maintain safety awareness.

07.0 KEEP AND ANALYZE MAINTENANCE, EMPLOYEE, EQUIPMENT AND INVENTORY RECORDS--The student will be able to:

07.01 Maintain equipment use and maintenance records.
07.02 Keep and file personnel records and information.
07.03 Record and analyze time-on-task information.
07.04 Maintain pesticide use information.
07.05 Keep inventory records.
07.06 Prepare a written report or summary based on records.
07.07 Observe and make recommendations based on records.
07.08 Evaluate employees, equipment and practices based on records.
07.09 Develop annual budget for complete operation.
07.10 Keep and file guarantees, warrantees, service contracts and operators manuals.

08.0 ANALYZE AND INCORPORATE TECHNICAL INFORMATION INTO MANAGEMENT PRACTICES--The student will be able to:

08.01 Maintain a current file of technical information.
08.02 Update skills and knowledge through workshops and seminars.
08.03 Analyze data relative to operation.
08.04 Assess new materials, chemicals and procedures based on research or technical information.
08.05 Interpret technical information relative to operation.

09.0 OBSERVE LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS--The student will be able to:

09.01 Observe OSHA rules and regulations.
09.02 Observe EPA rules and regulations.
09.03 Secure and maintain permits, certificates and licenses appropriate to operation.
09.04 Observe stream and groundwater regulations.
09.05 Recognize responsibilities and liabilities of occupation or position.
09.06 Maintain a list of agencies responsible for regulating the industry.

10.0 DEMONSTRATE LEADERSHIP, COMMUNICATION, PUBLIC RELATIONS, EMPLOYABILITY AND HUMAN RELATIONS SKILLS--The student will be able to:

10.01 Conduct a job search.
10.02 Secure information about a job.
10.03 Identify documents that may be required when applying for a job.
10.04 Complete a job application form correctly.
10.05 Demonstrate competence in job interview techniques.
10.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
10.07 Identify acceptable work habits.
10.08 Demonstrate knowledge of how to make job changes appropriately.
10.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Landscape Operations

CODE NUMBER: Secondary 8121100 Postsecondary ORV0215

Florida CIP 0101.060500

SECONDARY SCHOOL CREDITS 6 COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): _____6-9 _____9-12 _X_ Postsecondary Adult Vocational

______ Postsecondary Vocational _X_ Other 10-12,30,31

CERTIFICATION COVERAGE:	10-12,30,31	VOC AGRI @4 HORTICULT #7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 HORTICULT @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as gardeners groundkeepers (79014523), landscape gardeners (408.161-010), supervisors, park workers (406.134-014), landscape contractors (182.167-014), landscape installer, landscape maintainer, or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to locate, plant and maintain turf plants and shrubs, construct and install structures and conveniences, supervise workers, prepare sites, maintain tools and equipment, control pests, fertilize, irrigate and design exterior and interior plantings. Subject matter also includes laws and regulations, as well as leadership, employability, communication and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8121510	Introductory Horticulture
8121520	Horticulture Sciences
8121110	Landscape Operations 1
8121120	Landscape Operations 2
8121130	Landscape Operations 3

II. LABORATORY ACTIVITIES: Agricultural shop and landscape land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, hand and portable carpentry power tools, landscape gardening tools, arc welders, oxy-acetylene torches, tractors and landscape equipment, chemical applicators and power sprayers.

III. SPECIAL NOTE: FFA (secondary) and the National Postsecondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

Because of the production and marketing cycle of the landscaping industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

III. SPECIAL NOTE: Continued

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupations which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual education plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

The asterisk identifies student performance standards that are additions to the core and are unique to this program.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the horticulture industry.
11. Identify and classify plants.
12. Propagate plants.
13. Identify growing media and apply fertilizers.
14. Irrigate plants and turf.
15. Control pests.
16. Control plant growth.
17. Harvest, transport, and install plant materials.
18. Operate, repair, and maintain tools and equipment.
19. Demonstrate leadership, employability, communications, and human-relations skills.
20. Describe plant physiology and growth.
21. Design and sell landscape project.
22. Prepare estimates and establish contracts.
23. Analyze and organize the project.
24. Lay out and install landscape and interiorscape.
25. Maintain landscapes and equipment.
26. Maintain customer relations and observe follow-up procedures.
27. Demonstrate proficiency in applying basic mathematics, science and communication skills to agriculture problem solving.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8121100

PROGRAM TITLE: Landscape Operations POSTSECONDARY NUMBER: ORV0215

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.
* 07.08 Maintain job records, daily log sheets, and inventory.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.

10.03 Describe the importance of horticulture to the environment.
10.04 Describe regulations that affect the horticulture industry.
10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Levels I and II.
11.02 Classify plants botanically and list environmental preferences of plants (e.g., shade, sun, wind, moisture, salt). Levels I and II.
* 11.03 Classify plants as monocots or dicots.
* 11.04 Classify plants as annuals, biennials, and perennials.
* 11.05 Identify plants appropriate to a region.
* 11.06 Classify plants according to growth habit.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).
12.06 Transplant rooted propagation materials.
* 12.07 Identify asexual and sexual plant propagation methods.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.03 Collect soil samples for laboratory analysis and interpret the results.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.08 Develop a fertilization schedule.
13.09 Determine rate of fertilizer application.
13.10 Apply fertilizer and soil amendments.
13.11 Apply special fertilization methods appropriate to a region or plant group.
13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.02 Identify sources and quality of water for irrigation.
14.03 Identify irrigation components and types of systems.
14.04 Install irrigation-system components.
14.05 Irrigate plants at recommended rates.
14.06 Identify procedures for measuring water-application rates.
14.07 Repair irrigation systems.
14.08 Identify drainage components for different types of drainage systems.
* 14.09 Install irrigation systems with control valves and clocks.
* 14.10 Install drainage system and identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.
15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).

15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.
* 15.12 Report insect and disease damage.
* 15.13 Interpret and use spray compatibility chart.
* 15.14 Determine appropriate time to apply chemicals

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.02 Identify and select chemical growth regulators.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.
17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.
* 17.06 Install ornamental plants per a landscape plan.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment preoperational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.
18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.
* 18.06 Identify, operate, and maintain tractor and power equipment.
* 18.07 Load, secure, and transport equipment.
* 18.08 Demonstrate safety precautions while working with tools and equipment.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.
* 19.09 Conduct a job search.
* 19.10 Secure information about a job.

20.0 DESCRIBE PLANT PHYSIOLOGY AND GROWTH--The student will be able to:

20.01 Describe woody and herbaceous plants.
20.02 Identify parts of the plant.
20.03 Describe the process of photosynthesis.
20.04 Describe the basic functions of roots, stems, and leaves.
20.05 List the requirements for healthy plant growth.
20.06 Identify taproot and fibrous root systems.
20.07 Identify the difference between evergreen and deciduous plants.

21.0 DESIGN AND SELL LANDSCAPE PROJECTS--The student will be able to:

21.01 Confer with customer regarding special requests and needs.
21.02 Analyze environmental conditions of the site for the project.
21.03 Identify plant materials appropriate for the project.
21.04 Determine the desired effect and purpose of the project.
21.05 Design the project.
21.06 Present the design.

22.0 PREPARE ESTIMATES AND ESTABLISH CONTRACTS--The student will be able to:

22.01 Develop a list of materials required for the project.
22.02 Determine equipment needs.
22.03 Estimate time and man hours.
22.04 Determine costs of materials, equipment, and labor.
22.05 Prepare a price for customer based specifications.
22.06 Establish terms of a contract.

23.0 ANALYZE AND ORGANIZE THE PROJECT--The student will be able to:

23.01 Interpret plans and specifications.
23.02 Identify safety requirements.
23.03 Organize site preparation.
23.04 Locate project materials.
23.05 Determine personnel needs.
23.06 Determine equipment needs.
23.07 Establish project schedule.

24.0 LAY OUT AND INSTALL LANDSCAPE AND INTERIORSCAPE--The student will be able to:

24.01 Locate existing utilities.
24.02 Rough grade the site.
24.03 Determine procedures for installing large materials.
24.04 Install irrigation system.
24.05 Describe procedures for constructing hardscape (walls, walks, patio, drives, etc.)
24.06 Lay out and install plants.
24.07 Prepare interiorscape.
24.08 Prepare final grade.
24.09 Install lawns and turfs.
24.10 Install mulch and perform final cleanup.

25.0 MAINTAIN LANDSCAPE AND EQUIPMENT--The student will be able to:

25.01 Determine water requirements and apply at proper rates.
25.02 Identify weeds and apply herbicides safely.
25.03 Determine fertilization requirements and apply at proper rates.
25.04 Identify plant pest, insect, and disease problems and apply corrective measures.
25.05 Trim and prune landscape plants.
25.06 Maintain turf viability: mow at proper height and frequency, aerate, edge, clip, and remove trash.
25.07 Cultivate and mulch plants.
25.08 Brace and repair trees.
25.09 Provide protection for plants from adverse weather conditions.
25.10 Select, operate, and maintain landscape equipment.
25.11 Comply with local, state, and federal regulations regarding landscape maintenance.
25.12 Demonstrate sanitation and safety practices when maintaining landscape.

26.0 MAINTAIN CUSTOMER RELATIONS AND OBSERVE FOLLOW-UP PROCEDURES--The student will be able to:

26.01 Conduct walk-through of project with client to assure satisfaction.
26.02 Identify current and future maintenance requirements.
26.03 Analyze project records for profitability and employee performance.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.01 Identify and interpret basic quantative information contained in agricultural charts, graphs and tables.
27.02 Identify basic concepts of physics in agricultural applications.
27.03 Identify basic concepts of chemistry in agricultural applications.
27.04 Identify basic biological concepts in agricultural applications.
27.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
27.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture — COURSE CREDIT: 1
PROGRAM TITLE: Landscape Operations — PROGRAM NUMBER: 8121100
COURSE TITLE: Agriscience Foundations — COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.

09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Landscape Operations
PROGRAM NUMBER: 8121100

COURSE TITLE: Introductory Horticulture
COURSE NUMBER: 8121510

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of career opportunities; global importance of agriculture; plant classification; propagation; growing media; nutritional needs; fertilization; irrigation; pest identification; pest control, pruning; plant installation; transplanting; safe hand-tool use; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level I.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level I.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.10 Apply fertilizer and soil amendments.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.05 Irrigate plants at recommended rates.

INTRODUCTORY HORTICULTURE - Continued

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment preoperational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Landscape Operations	PROGRAM NUMBER:	8121100
COURSE TITLE:	Horticulture Science	COURSE NUMBER:	8121520

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of industry regulations; plant classification; plant transportation; soil sampling and analysis; fertilizer calculations; recording keeping; irrigation components, water quality; drainage; integrated pest management; pesticide safety and regulations; equipment calibration; chemical growth regulators; xeriscaping; integrated landscape management; safe use of power equipment; record keeping; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.04 Describe regulations that affect the horticulture industry.
10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level II.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level II.

12.0 PROPAGATE PLANTS--The student will be able to:

12.06 Transplant rooted propagation materials.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.03 Collect soil samples for laboratory analysis and interpret the results.
13.08 Develop a fertilization schedule.
13.09 Determine rate of fertilizer application.
13.11 Apply special fertilization methods appropriate to a region or plant group.
13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.02 Identify sources and quality of water for irrigation.
14.03 Identify irrigation components and types of systems.
14.04 Install irrigation system components.
14.06 Identify procedures for measuring water application rates.
14.07 Repair irrigation systems.
14.08 Identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.02 Identify and select chemical growth regulators.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture COURSE CREDIT: 1

PROGRAM TITLE: Landscape Operations PROGRAM NUMBER: 8121100

COURSE TITLE: Landscape Operations 1 COURSE NUMBER: 8121110

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of management skills, control, physiology and growth, plant material harvesting, transportation and installation and agricultural problem solving.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.08 Maintain job records, daily log sheets, and inventory.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

* 11.03 Classify plants as monocots or dicots.
* 11.04 Classify plants as annuals, biennials, and perennials.
* 11.05 Identify plants appropriate to a region.
* 11.06 Classify plants according to growth habit.

12.0 PROPAGATE PLANTS--The student will be able to:

* 12.07 Identify asexual and sexual plant propagation methods.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

* 14.09 Install irrigation systems with control valves and clocks.
* 14.10 Install drainage system and identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

* 15.12 Report insect and disease damage.
* 15.13 Interpret and use spray compatibility chart.
* 15.14 Determine appropriate time to apply chemicals

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

* 17.06 Install ornamental plants per a landscape plan.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

* 18.06 Identify, operate, and maintain tractor and power equipment.
* 18.07 Load, secure, and transport equipment.
* 18.08 Demonstrate safety precautions while working with tools and equipment.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

* 19.09 Conduct a job search.
* 19.10 Secure information about a job.

20.0 DESCRIBE PLANT PHYSIOLOGY AND GROWTH--The student will be able to:

20.01 Describe woody and herbaceous plants.
20.02 Identify parts of the plant.
20.03 Describe the process of photosynthesis.
20.04 Describe the basic functions of roots, stems, and leaves.
20.05 List the requirements for healthy plant growth.
20.06 Identify taproot and fibrous root systems.
20.07 Identify the difference between evergreen and deciduous plants.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.01 Identify and interpret basic quantative information contained in agricultural charts, graphs and tables.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Landscape Operations PROGRAM NUMBER: 8121100
COURSE TITLE: Landscape Operations 2 COURSE NUMBER: 8121120

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of landscape project design, estimation, organization, lay-out, installation, and sales, and agricultural problem solving.

21.0 DESIGN AND SELL LANDSCAPE PROJECTS--The student will be able to:

21.01 Confer with customer regarding special requests and needs.
21.02 Analyze environmental conditions of the site for the project.
21.03 Identify plant materials appropriate for the project.
21.04 Determine the desired effect and purpose of the project.
21.05 Design the project.
21.06 Present the design.

22.0 PREPARE ESTIMATES AND ESTABLISH CONTRACTS--The student will be able to:

22.01 Develop a list of materials required for the project.
22.02 Determine equipment needs.
22.03 Estimate time and man hours.
22.04 Determine costs of materials, equipment, and labor.
22.05 Prepare a price for customer based specifications.
22.06 Establish terms of a contract.

23.0 ANALYZE AND ORGANIZE THE PROJECT--The student will be able to:

23.01 Interpret plans and specifications.
23.02 Identify safety requirements.
23.03 Organize site preparation.
23.04 Locate project materials.
23.05 Determine personnel needs.
23.06 Determine equipment needs.
23.07 Establish project schedule.

24.0 LAY OUT AND INSTALL LANDSCAPE AND INTERIORSCAPE--The student will be able to:

24.01 Locate existing utilities.
24.02 Rough grade the site.
24.03 Determine procedures for installing large materials.
24.04 Install irrigation system.
24.05 Describe procedures for constructing hardscape (walls, walks, patio, drives, etc.)

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
27.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

STUDENT PERFORMANCE STANDARDS   EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture   COURSE CREDIT: 1

PROGRAM TITLE: Landscape Operations   PROGRAM NUMBER: 8121100

COURSE TITLE: Landscape Operations 3   COURSE NUMBER: 8121130

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of landscape and interiorscape layout, installation, maintenance, customer relations, follow-up procedures, equipment maintenance and agricultural problem solving.

24.0 LAY OUT AND INSTALL LANDSCAPE AND INTERIORSCAPE--The student will be able to:

24.06 Lay out and install plants.
24.07 Prepare interiorscape.
24.08 Prepare final grade.
24.09 Install lawns and turfs.
24.10 Install mulch and perform final cleanup.

25.0 MAINTAIN LANDSCAPE AND EQUIPMENT--The student will be able to:

25.01 Determine water requirements and apply at proper rates.
25.02 Identify weeds and apply herbicides safely.
25.03 Determine fertilization requirements and apply at proper rates.
25.04 Identify plant pest, insect, and disease problems and apply corrective measures.
25.05 Trim and prune landscape plants.
25.06 Maintain turf viability: mow at proper height and frequency, aerate, edge, clip, and remove trash.
25.07 Cultivate and mulch plants.
25.08 Brace and repair trees.
25.09 Provide protection for plants from adverse weather conditions.
25.10 Select, operate, and maintain landscape equipment.
25.11 Comply with local, state, and federal regulations regarding landscape maintenance.
25.12 Demonstrate sanitation and safety practices when maintaining landscape.

26.0 MAINTAIN CUSTOMER RELATIONS AND OBSERVE FOLLOW-UP PROCEDURES--The student will be able to:

26.01 Conduct walk-through of project with client to assure satisfaction.
26.02 Identify current and future maintenance requirements.
26.03 Analyze project records for profitability and employee performance.

27.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

27.02 Identify basic concepts of physics in agricultural applications.
27.03 Identify basic concepts of chemistry in agricultural applications.
27.04 Identify basic biological concepts in agricultural applications.

C/12/16/91

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION *EFFECTIVE DATE:* July, 1992

PROGRAM TITLE: Landscape Technology

CODE NUMBER: Secondary _______ Postsecondary _______________

Florida CIP 0101.060501

SECONDARY SCHOOL CREDITS _____ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS _____

APPLICABLE LEVEL(S): _____7-9 _____9-12 _____Postsecondary Adult Vocational

X Postsecondary Vocational _____ Other ____________________

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to preparestudents for employment as landscape contractors (182.167-014), landscape gardeners (408.161-010) landscapers (408.161-010), landscape designers, supervisors, park workers (406.134-014), gardeners, special effects (406.381-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to supervise, manage, and design exterior and interior landscapes. Subject matter also includes plant identification, disease and insect control, plant nutrition, irrigation, laws and regulations, and record keeping, as well as leadership, employability, communications, public and human relations skills.

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including safe use of mechanics' hand tools, landscaping hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, power sprayers, chemical applicators and tractors and landscaping equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organizationis the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflect equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Analyze and design the project (landscape and interiorscape).
02. Prepare estimate and establish contracts.
03. Analyze and organize the project.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

04. Lay out and install landscape and interiorscape.
05. Plan, install, and service irrigation system.
06. Plan and install a drainage system
07. Maintain customer relations and observe follow-up procedures.
08. Maintain landscape plants.
09. Manage a pest control program.
10. Protect plants and equipment from adverse weather.
11. Select, operate, and maintain landscape tools and equipment.
12. Maintain and analyze records.
13. Demonstrate managerial and supervisory skills.
14. Demonstrate employability skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture SECONDARY NUMBER:
PROGRAM TITLE: Landscape Technology POSTSECONDARY NUMBER: 0101.060501

01.0 ANALYZE AND DESIGN THE PROJECT (LANDSCAPE AND INTERIORSCAPE)--The student will be able to:

01.01 Determine the purpose, problems, or desired effect of the project.
01.02 Analyze the environmental conditions of the landscape or interiorscape.
01.03 Determine site analysis problems.
01.04 Demonstrate working knowledge of computer-assisted drafting (CAD) system.
01.05 Design hardscape plan.
01.06 Design and select appropriate plant materials for desired effect and function.
01.07 Determine the method and form of presentation of the project.

02.0 PREPARE ESTIMATE AND ESTABLISH CONTRACTS--The student will be able to:

02.01 Develop a list of materials required for the project.
02.02 Determine equipment needs.
02.03 Estimate time and man hours.
02.04 Determine cost of materials, equipment, and labor.
02.05 Prepare a price for customer, based on specifications.
02.06 Establish terms of a contract.

03.0 ANALYZE AND ORGANIZE THE PROJECT--The student will be able to:

03.01 Interpret plans and specifications.
03.02 Identify safety requirements.
03.03 Organize site preparation.
03.04 Locate project materials.
03.05 Determine personnel needs.
03.06 Determine equipment needs.
03.07 Establish project schedule.

04.0 LAY OUT AND INSTALL LANDSCAPE AND INTERIORSCAPE--The student will be able to:

04.01 Locate existing utilities.
04.02 Rough grade the site.
04.03 Install large materials.
04.04 Install irrigation system.
04.05 Construct hardscape (walls, walks, patio, drives, etc.).
04.06 Lay out and install plants.
04.07 Prepare interiorscape.
04.08 Prepare final grade.
04.09 Install lawns.
04.10 Install mulch.
04.11 Perform final cleanup.

05.0 PLAN, INSTALL, AND SERVICE IRRIGATION SYSTEM--The student will be able to:

05.01 Determine irrigation requirements.
05.02 Assess quality of irrigation water.
05.03 Plan an irrigation system.
05.04 Supervise the installation of irrigation equipment.
05.05 Service and maintain electric and engine-driven pumps.
05.06 Operate and service low-volume irrigation system.
05.07 Operate and serve overhead irrigation system.
05.08 Operate and maintain automatic system.
05.09 Calculate cost efficiency of irrigation system.

06.0 PLAN AND INSTALL A DRAINAGE SYSTEM--The student will be able to:

06.01 Determine the natural slope/grade of an area.
06.02 Determine the texture and pecolation characteristics of the soil.
06.03 Identify techniques for constructing ditches and culverts.

06.0 PLAN AND INSTALL A DRAINAGE SYSTEM-Continued

06.04 Direct the movement of water away from structures and installations.
06.05 Plan the construction of an underground drainage system.
06.06 Estimate and order appropriate full materials.
06.07 Establish proper elevations and grade a landscape site.
06.08 Read soils and contour maps.

07.0 MAINTAIN CUSTOMER RELATIONS AND OBSERVE FOLLOW-UP PROCEDURES--The student will be able to:

07.01 Conduct walk-through of project with client to assure satisfaction.
07.02 Identify current and future maintenance requirements.
07.03 Analyze project records for profitablility and employee performance.

08.0 MAINTAIN LANDSCAPE PLANTS--The student will be able to:

08.01 Determine water requirements and apply at proper rates.
08.02 Identify weeds and apply herbicides safely.
08.03 Determine fertilization requirements and apply at proper rates.
08.04 Identify plant pest problems and apply corrective measures.
08.05 Regulate the growth of landscape plants through chemical or mechanical means.
08.06 Maintain turf viability (mow at proper height and frequency, aerate, edge, clip, and remove trash).
08.07 Cultivate and mulch plants.
08.08 Brace and repair trees.

09.0 MANAGE A PEST CONTROL PROGRAM--The student will be able to:

09.01 Develop an integrated pest management program or schedule.
09.02 Train workers in the safe use of pesticides.
09.03 Obtain a restricted-use pesticide license.

10.0 PROTECT PLANTS AND EQUIPMENT FROM ADVERSE WEATHER--The student will be able to:

10.01 Monitor and interpret weather forecasts.
10.02 Supervise procedures for protecting plants and equipment form adverse weather.
10.03 Compare cost and efficiency of various methods of protecting plants and equipment from adverse weather.

11.0 SELECT, OPERATE, AND MAINTAIN LANDSCAPE TOOLS AND EQUIPMENT--The student will be able to:

11.01 Determine equipment needs for the company.
11.02 Select and operate equipment for the job.
11.03 Supervise the service and maintenance of power equipment.
11.04 Supervise the repair and maintenance of facilities.
11.05 Instruct and supervise employees in the safe use of tools and equipment.
11.06 Maintain and inventory of parts and supplies.

12.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

12.01 Maintain fertilizer and pesticide application records.
12.02 Keep equipment maintenance and service records.
12.03 Maintain sales and production records.
12.04 Record labor and personnel information.
12.05 Keep inventory records.
12.06 Analyze cost and effectiveness of management practices.
12.07 Determine insurance needs.
12.08 Prepare an annual budget.
12.09 Prepare a five-year projection plan.
12.10 Maintain accounts-receivable and accounts-payable records.
12.11 Describe the use of computers in landscape operation.

13.0 DEMONSTRATE MANAGERIAL AND SUPERVISORY SKILLS--The student will be able to:

13.01 Instruct employees in their tasks.
13.02 Prepare daily work plans.
13.03 Enforce safety regulations.
13.04 Evaluate performance of employees.
13.05 Develop an outline for a policy manual.
13.06 Organize and conduct employee training.
13.07 Conduct employee grievance procedures.
13.08 Prepare job descriptions.
13.09 Conduct job interviews.
13.10 Demonstrate effective communication skills.
13.11 Demonstrate computer literacy as related to landscape operation.

14.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

14.01 Conduct a job search.
14.02 Secure information about job.
14.03 Identify documents that may be required when applying for a job.
14.04 Complete a job application form correctly.
14.05 Demonstrate competence in job interview techniques.
14.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
14.07 Identify acceptable work habits.
14.08 Demonstrate knowledge of how to make job changes appropriately.
14.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Livestock Production

CODE NUMBER: Secondary 8106600 Postsecondary ASG0200

Florida CIP 0101.030201

SECONDARY SCHOOL CREDITS 6

COLLEGE CREDITS ____

POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____6-9 ____9-12 X Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12, 30,31

CERTIFICATION COVERAGE:	10-12,30,31	VOC AGRI @4 AGRI PROD #7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 AGRI PROD @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as livestock ranchers (410.161-018), animal breeders (410.161-010), cowpunchers (410.674-014), farm machine operators (409.683-010), supervisor, stock ranch (410.131-022) or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to operate animal production enterprises by developing competencies concerning the selection, breeding, physiology, nutrition, health, housing, feeding and marketing of animals such as beef cattle, horses, swine and poultry. Subject matter also includes the operation and maintenance of equipment and machinery, production of forage, feed and pasture, construction and repair of facilities, analysis of production records, as well as leadership, communication, employability and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8106120	Animal Science 1
8106130	Animal Science 2
8106640	Livestock Production 4
8106650	Livestock Production 5
8106660	Livestock Production 6

II. LABORATORY ACTIVITIES: Agricultural shop, forage crop and livestock laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, tractor and field equipment, animal restraint equipment, animal health care instruments, chemical applicators and power sprayers.

III. SPECIAL NOTE: FFA (secondary) and the National Post-secondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

III. SPECIAL NOTE: Continued

Because of the production and marketing cycle of the livestock industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 8.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the animal science industry.
11. Apply approved nutritional and animal health practices.
12. Groom, exhibit and market animals.
13. Maintain equipment and facilities.
14. Operate, maintain, and repair machinery and equipment.
15. Maintain and analyze records.
16. Follow safety precautions.
17. Control parasites and diseases of animals.
18. Perform emergency first aid.
19. Identify, select and breed animals.
20. Plan routine management of animals and facilities.
21. Demonstrate approved practices in swine management.
22. Demonstrate approved practices in poultry management.
23. Demonstrate approved practices in beef cattle management.
24. Demonstrate approved practices in dairy cattle management.
25. Demonstrate approved practices in sheep and goat management.
26. Demonstrate approved practices in horse management.
27. Demonstrate approved practices in specialty animal management.

IV. INTENDED OUTCOMES - Continued

28. Demonstrate approved practices in aquaculture animal management.
29. Demonstrate leadership, employability, communications, and human relations skills.
30. Identify and interpret rules and regulations affecting the livestock industry.
31. Demonstrate proficiency in applying basic mathematics, science and communications skills to agriculture problem solving.

STUDENT PERFORMANCE STANDARDS   EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture   SECONDARY NUMBER: 8106600
PROGRAM TITLE: Livestock Production   POSTSECONDARY NUMBER: ASG0200

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.
11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.06 Measure and add medication to feed as prescribed.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.
11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.07 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.
12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.
14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.
15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.
15.06 Analyze records to determine efficiency of operation.

15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.
19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.
20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.
20.06 Implement and maintain sanitary conditions for animals including young.

20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

21.0 DEMONSTRATE APPROVED PRACTICES IN SWINE MANAGEMENT--The student will be able to:

21.01 Identify major breeds and desirable conformation characteristics.
21.02 Formulate feeds and feed swine.
21.03 Identify anatomy, methods, and procedures involved in swine reproduction.
21.04 Describe proper health and sanitation practices.
21.05 Describe methods of restraining, loading, handling, and transporting animals safely.
21.06 Identify market outlets for swine and collect and interpret market reports.
21.07 Construct, repair, and maintain swine facilities.
21.08 Operate, maintain, and repair tools and equipment used with swine production systems.
21.09 Apply management skills and economic principles to a swine production operation.
21.10 Describe the different swine production systems.

22.0 DEMONSTRATE APPROVED PRACTICES IN POULTRY MANAGEMENT--The student will be able to:

22.01 Identify major breeds and desirable conformation characteristics.
22.02 Formulate feeds and feed poultry.
22.03 Identify anatomy, methods, and procedures involved in poultry reproduction.
22.04 Describe proper health and sanitation practices.
22.05 Describe methods of restraining, loading, handling, and transporting animals safely.
22.06 Identify market outlets for poultry and collect and interpret market reports.
22.07 Construct, repair, and maintain poultry facilities.
22.08 Operate, maintain, and repair tools and equipment used in poultry and egg production.
22.09 Apply management skills and economic principles to a poultry production operation.
22.10 Describe the different poultry production systems.

23.0 DEMONSTRATE APPROVED PRACTICES IN BEEF CATTLE MANAGEMENT--The student will be able to:

23.01 Identify major breeds and desirable conformation characteristics.
23.02 Formulate feeds and feed beef cattle.
23.03 Identify anatomy, methods, and procedures involved in beef cattle reproduction.
23.04 Describe proper health and sanitation practices.
23.05 Describe methods of restraining, loading, handling, and transporting animals safely.
23.06 Identify market outlets for beef cattle and collect and interpret market reports.
23.07 Construct, repair, and maintain beef cattle facilities.
23.08 Operate, maintain, and repair tools and equipment used with beef cattle.
23.09 Apply management skills and economic principles to a beef cattle production operation.
23.10 Describe the different beef cattle production systems.

24.0 DEMONSTRATE APPROVED PRACTICES IN DAIRY CATTLE MANAGEMENT--The student will be able to:

24.01 Identify major breeds and desirable conformation characteristics.
24.02 Formulate feeds and feed dairy cattle.
24.03 Identify anatomy, methods, and procedures involved in dairy cattle reproduction.
24.04 Describe proper health and sanitation practices.

24.05 Describe methods of restraining, loading, handling, and transporting animals safely.
24.06 Identify market outlets for dairy cattle/dairy products and collect and interpret market reports.
24.07 Construct, repair, and maintain dairy cattle facilities.
24.08 Operate, maintain, and repair tools and equipment used with dairy cattle.
24.09 Apply management skills and economic principles to a dairy cattle production operation.
24.10 Describe the different dairy cattle production systems.

25.0 DEMONSTRATE APPROVED PRACTICES IN SHEEP AND GOAT MANAGEMENT--The student will be able to:

25.01 Identify major breeds and desirable conformation characteristics.
25.02 Formulate feeds and feed sheep and goats.
25.03 Identify anatomy, methods, and procedures involved in sheep and goat reproduction.
25.04 Describe proper health and sanitation practices.
25.05 Describe methods of restraining, loading, handling, and transporting animals safely.
25.06 Identify market outlets for sheep and goats and collect and interpret market reports.
25.07 Construct, repair, and maintain sheep and goat facilities.
25.08 Operate, maintain, and repair tools and equipment used with sheep and goats.
25.09 Apply management skills and economic principles to sheep and goats.
25.10 Describe the different sheep and goat production systems.

26.0 DEMONSTRATE APPROVED PRACTICES IN HORSE MANAGEMENT--The student will be able to:

26.01 Identify major breeds and desirable conformation characteristics.
26.02 Formulate feeds and feed horses.
26.03 Identify anatomy, methods, and procedures involved in horse reproduction.
26.04 Describe proper health and sanitation practices.
26.05 Describe methods of restraining, loading, handling, and transporting animals safely.
26.06 Identify market outlets for horses and collect and interpret market reports.
26.07 Construct, repair, and maintain horse facilities.
26.08 Operate, maintain, and repair tools and equipment used in horse production and training.
26.09 Apply management skills and economic principles to a horse production and/or training operation.
26.10 Describe the different horse production systems.

27.0 DEMONSTRATE APPROVED PRACTICES IN SPECIALTY ANIMAL MANAGEMENT (BEES, DOGS, RABBITS, QUAIL, WORMS, CATS, MICE, CRICKETS, EXOTIC BIRDS, ETC.) The student will be able to:

27.01 Identify major species and desirable conformation characteristics.
27.02 Formulate feeds and feed specialty animals.
27.03 Identify anatomy, methods, and procedures involved in specialty animal reproduction.
27.04 Describe proper health and sanitation practices.
27.05 Describe methods of restraining, loading, handling, and transporting animals safely.
27.06 Identify market outlets for specialty animals and collect and interpret market reports.
27.07 Construct, repair, and maintain specialty animal facilities.
27.08 Operate, maintain, and repair tools and equipment used with specialty animals.
27.09 Apply management skills and economic principles to different specialty animal operations.
27.10 Describe the different specialty animal production systems.

28.0 DEMONSTRATE APPROVED PRACTICES IN AQUACULTURAL ANIMAL MANAGEMENT--The student will be able to:

28.01 Identify major species and desirable conformation characteristics.
28.02 Formulate feeds and feed aquacultural animals.
28.03 Identify anatomy, methods, and procedures involved in the reproduction of aquacultural animal species.
28.04 Describe proper health and sanitation practices.
28.05 Describe methods of restraining, loading, handling, and transporting animals safely.
28.06 Identify market outlets for aquacultural species and collect and interpret market reports.

28.07 Construct, repair, and maintain aquaculture facilities.
28.08 Operate, maintain, and repair tools and equipment used in aquaculture.
28.09 Apply management skills and economic principles to an aquacultural operation.
28.10 Describe the different aquacultural animal production systems.

29.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN RELATIONS SKILLS--The student will be able to:

29.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
29.02 Identify acceptable work habits (ethics) and desired personal characteristics.
29.03 Demonstrate acceptable employee-hygiene habits.
29.04 Secure information about a job.
29.05 Complete a job application.
29.06 Demonstrate competence in job-interview techniques.
29.07 Demonstrate proper office procedures.
29.08 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
29.09 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

30.0 IDENTIFY AND INTERPRET RULES AND REGULATIONS AFFECTING THE LIVESTOCK INDUSTRY.--The student will be able to:

30.01 Maintain a file of current livestock rules and regulations.
30.02 Secure professional services and information.
30.03 Observe EPA pesticide use regulations.
30.04 Observe regulations regarding the use of medications and growth stimulants.
30.05 Observe state and federal regulations regarding brucellosis testing/eradication programs and other programs.
30.06 Identify applicable land-use and zoning regulations.
30.07 Identify agencies affecting land and wildlife utilization (e.g., DNR, DER, EPA)
30.08 Identify agencies regulating employee/employer (e.g., OSHA).

31.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

31.01 Solve time, distance, area, and volume problems.
31.02 Solve ratio, proportion, and percentage problems.
31.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
31.04 Identify basic concepts of physics in agricultural applications.
31.05 Identify basic concepts of chemistry in agricultural applications.
31.06 Identify basic biological concepts in agricultural applications.
31.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
31.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
31.09 Demonstrate the scientific method in agricultural problem solving.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture COURSE CREDIT: 1

PROGRAM TITLE: Livestock Production PROGRAM NUMBER: 8106600

COURSE TITLE: Agriscience Foundations COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Livestock Production	PROGRAM NUMBER:	8106600
COURSE TITLE:	Animal Science 1	COURSE NUMBER:	8106120

COURSE DESCRIPTION:

The purpose of this course is to provide competencies in the areas of history, animal nutrition, health, grooming, showing, marketing, facilities and equipment maintenance, operation and repair of machinery, safety, parasite and disease control, animal first aid, and breed identification and selection.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.
11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.07 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.

STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture

COURSE CREDIT: 1

PROGRAM TITLE: Livestock Production

PROGRAM NUMBER: 8106600

COURSE TITLE: Animal Science 2

COURSE NUMBER: 8106130

COURSE DESCRIPTION:

The purpose of this course is to provide competency in the areas of animal nutrition and health, grooming, exhibiting and marketing, operation and maintenance of machinery, record keeping, safety, parasite and disease control, first aid, and management.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.06 Measure and add medication to feed as prescribed.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.

ANIMAL SCIENCE 2 - Continued

11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.
15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.
15.06 Analyze records to determine efficiency of operation.
15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.
20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.

20.06 Implement and maintain sanitary conditions for animals including young.
20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Livestock Production	PROGRAM NUMBER:	8106600
COURSE TITLE:	Livestock Production 4	COURSE NUMBER:	8106640

COURSE DESCRIPTION: This course is designed to develop competencies in the areas of swine, poultry, and aquacultural animal management and in leadership, employability, communication and human relation skills.

21.0 DEMONSTRATE APPROVED PRACTICES IN SWINE MANAGEMENT--The student will be able to:

21.01 Identify major breeds and desirable conformation characteristics.
21.02 Formulate feeds and feed swine.
21.03 Identify anatomy, methods, and procedures involved in swine reproduction.
21.04 Describe proper health and sanitation practices.
21.05 Describe methods of restraining, loading, handling, and transporting animals safely.
21.06 Identify market outlets for swine and collect and interpret market reports.
21.07 Construct, repair, and maintain swine facilities.
21.08 Operate, maintain, and repair tools and equipment used with swine production systems.
21.09 Apply management skills and economic principles to a swine production operation.
21.10 Describe the different swine production systems.

22.0 DEMONSTRATE APPROVED PRACTICES IN POULTRY MANAGEMENT--The student will be able to:

22.01 Identify major breeds and desirable conformation characteristics.
22.02 Formulate feeds and feed poultry.
22.03 Identify anatomy, methods, and procedures involved in poultry reproduction.
22.04 Describe proper health and sanitation practices.
22.05 Describe methods of restraining, loading, handling, and transporting animals safely.
22.06 Identify market outlets for poultry and collect and interpret market reports.
22.07 Construct, repair, and maintain poultry facilities.
22.08 Operate, maintain, and repair tools and equipment used in poultry and egg production.
22.09 Apply management skills and economic principles to a poultry production operation.
22.10 Describe the different poultry production systems.

28.0 DEMONSTRATE APPROVED PRACTICES IN AQUACULTURAL ANIMAL MANAGEMENT--The student will be able to:

28.01 Identify major species and desirable conformation characteristics.
28.02 Formulate feeds and feed aquacultural animals.
28.03 Identify anatomy, methods, and procedures involved in the reproduction of aquacultural animal species.
28.04 Describe proper health and sanitation practices.
28.05 Describe methods of restraining, loading, handling, and transporting animals safely.
28.06 Identify market outlets for aquacultural species and collect and interpret market reports.

LIVESTOCK PRODUCTION STANDARDS--Continued

28.07 Construct, repair, and maintain aquaculture facilities.
28.08 Operate, maintain, and repair tools and equipment used in aquaculture.
28.09 Apply management skills and economic principles to an aquacultural operation.
28.10 Describe the different aquacultural animal production systems.

29.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN RELATIONS SKILLS--The student will be able to:

29.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
29.02 Identify acceptable work habits (ethics) and desired personal characteristics.
29.03 Demonstrate acceptable employee-hygiene habits.
29.04 Secure information about a job.
29.05 Complete a job application.
29.06 Demonstrate competence in job-interview techniques.
29.07 Demonstrate proper office procedures.
29.08 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
29.09 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Livestock Production
PROGRAM NUMBER: 8106600

COURSE TITLE: Livestock Production 5
COURSE NUMBER: 8106650

COURSE DESCRIPTION: This course is designed to develop competencies in the areas of beef cattle, dairy cattle and sheep and goat management, and rules and regulations affecting the livestock industry.

23.0 DEMONSTRATE APPROVED PRACTICES IN BEEF CATTLE MANAGEMENT--The student will be able to:

23.01 Identify major breeds and desirable conformation characteristics.
23.02 Formulate feeds and feed beef cattle.
23.03 Identify anatomy, methods, and procedures involved in beef cattle reproduction.
23.04 Describe proper health and sanitation practices.
23.05 Describe methods of restraining, loading, handling, and transporting animals safely.
23.06 Identify market outlets for beef cattle and collect and interpret market reports.
23.07 Construct, repair, and maintain beef cattle facilities.
23.08 Operate, maintain, and repair tools and equipment used with beef cattle.
23.09 Apply management skills and economic principles to a beef cattle production operation.
23.10 Describe the different beef cattle production systems.

24.0 DEMONSTRATE APPROVED PRACTICES IN DAIRY CATTLE MANAGEMENT--The student will be able to:

24.01 Identify major breeds and desirable conformation characteristics.
24.02 Formulate feeds and feed dairy cattle.
24.03 Identify anatomy, methods, and procedures involved in dairy cattle reproduction.
24.04 Describe proper health and sanitation practices.
24.05 Describe methods of restraining, loading, handling, and transporting animals safely.
24.06 Identify market outlets for dairy cattle/dairy products and collect and interpret market reports.
24.07 Construct, repair, and maintain dairy cattle facilities.
24.08 Operate, maintain, and repair tools and equipment used with dairy cattle.

24.09 Apply management skills and economic principles to a dairy cattle production operation.
24.10 Describe the different dairy cattle production systems.

25.0 DEMONSTRATE APPROVED PRACTICES IN SHEEP AND GOAT MANAGEMENT--The student will be able to:

25.01 Identify major breeds and desirable conformation characteristics.
25.02 Formulate feeds and feed sheep and goats.
25.03 Identify anatomy, methods, and procedures involved in sheep and goat reproduction.
25.04 Describe proper health and sanitation practices.
25.05 Describe methods of restraining, loading, handling, and transporting animals safely.
25.06 Identify market outlets for sheep and goats and collect and interpret market reports.
25.07 Construct, repair, and maintain sheep and goat facilities.
25.08 Operate, maintain, and repair tools and equipment used with sheep and goats.
25.09 Apply management skills and economic principles to sheep and goats.
25.10 Describe the different sheep and goat production systems.

30.0 IDENTIFY AND INTERPRET RULES AND REGULATIONS AFFECTING THE LIVESTOCK INDUSTRY.--The student will be able to:

30.01 Maintain a file of current livestock rules and regulations.
30.02 Secure professional services and information.
30.03 Observe EPA pesticide use regulations.
30.04 Observe regulations regarding the use of medications and growth stimulants.
30.05 Observe state and federal regulations regarding brucellosis testing/eradication programs and other programs.
30.06 Identify applicable land-use and zoning regulations.
30.07 Identify agencies affecting land and wildlife utilization (e.g., DNR, DER, EPA)
30.08 Identify agencies regulating employee/employer (e.g., OSHA).

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Livestock Production	PROGRAM NUMBER:	8106600
COURSE TITLE:	Livestock Production 6	COURSE NUMBER:	8106660

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of horse and specialty animal management and in agricultural problem solving.

26.0 DEMONSTRATE APPROVED PRACTICES IN HORSE MANAGEMENT--The student will be able to:

26.01 Identify major breeds and desirable conformation characteristics.
26.02 Formulate feeds and feed horses.
26.03 Identify anatomy, methods, and procedures involved in horse reproduction.
26.04 Describe proper health and sanitation practices.
26.05 Describe methods of restraining, loading, handling, and transporting animals safely.
26.06 Identify market outlets for horses and collect and interpret market reports.
26.07 Construct, repair, and maintain horse facilities.
26.08 Operate, maintain, and repair tools and equipment used in horse production and training.
26.09 Apply management skills and economic principles to a horse production and/or training operation.
26.10 Describe the different horse production systems.

27.0 DEMONSTRATE APPROVED PRACTICES IN SPECIALTY ANIMAL MANAGEMENT (BEES, DOGS, RABBITS, QUAIL, WORMS, CATS, MICE, CRICKETS, EXOTIC BIRDS, ETC.) The student will be able to:

27.01 Identify major species and desirable conformation characteristics.
27.02 Formulate feeds and feed specialty animals.
27.03 Identify anatomy, methods, and procedures involved in specialty animal reproduction.
27.04 Describe proper health and sanitation practices.
27.05 Describe methods of restraining, loading, handling, and transporting animals safely.
27.06 Identify market outlets for specialty animals and collect and interpret market reports.
27.07 Construct, repair, and maintain specialty animal facilities.
27.08 Operate, maintain, and repair tools and equipment used with specialty animals.
27.09 Apply management skills and economic principles to different specialty animal operations.
27.10 Describe the different specialty animal production systems.

31.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

31.01 Solve time, distance, area, and volume problems.
31.02 Solve ratio, proportion, and percentage problems.
31.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
31.04 Identify basic concepts of physics in agricultural applications.
31.05 Identify basic concepts of chemistry in agricultural applications.
31.06 Identify basic biological concepts in agricultural applications.
31.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
31.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
31.09 Demonstrate the scientific method in agricultural problem solving.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July 1992

PROGRAM TITLE: Natural Resources and Forest Ecology

CODE NUMBER: Secondary 8118200 Postsecondary ____

Florida CIP 0103.059901

SECONDARY SCHOOL CREDITS 3 COLLEGE CREDITS ____ POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____7-9 ____9-12 ____ Postsecondary Adult Vocational

____ Postsecondary Vocational X Other 10-12, 30, 31

CERTIFICATION COVERAGE:

VOC AGRI @4
FORESTRY #7
AGRI REC #7
AGRI @4
AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment in positions in the agriculture industry as forest and conservation worker (79002514); biological aide (049.384-010); soil conservation aide (040.061-054); wildlife conservation aide, park ranger (169.167-042); forester aide (452.364-010); forest worker (452.687-010; cruiser (459.387-010); forest conservation worker (80002831); fish hatchery worker (446.684-010); tree planter (452.687-018); and surveyor helper (869.567-010); or to provide supplemental training for persons previously or currently employed in these occupations.

This program is a standard core for selected advanced agriculture programs.

Completers of this program will be prepared to enter advanced training and education in specialized fields of agriscience or agribusiness. They may also be employed as trainees or beginning workers in various agriscience- or agribusiness-related positions in certain businesses and industries.

The content includes, but is not limited to, instruction that prepares individuals for activities involving the conservation and/or improvement of forests and natural resources such as air, soil, water, land, fish, and wildlife for economic and recreational purposes. Subject matter also includes maintenance and operation of related equipment, as well as employability skills, mathematics, basic biological sciences, communications, and human-relations skills.

Listed below are the courses that this program comprises when offered at the secondary level:

8106810	Agriscience Foundations
8118210	Forest Ecosystems
8118220	Forest and Natural Resources

II. LABORATORY ACTIVITIES: Laboratory activities are an integral part of this program including the safe use of mechanic hand tools, field hand tools, hand and power portable carpentry tools, soil and water sampling equipment, tractors and field equipment, and hand fire-control equipment.

III. SPECIAL NOTE: The FFA (secondary) and the National Postsecondary Agriculture Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training experiences and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student project, (3) placement for experience, and (4) cooperative education.

Because of the production and marketing cycle of forestry and natural-resources industries, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Students can take the cooperative training either during or after completing the program. Whenever the cooperative method is offered, the following are required for each student: a training plan, signed by the student, teacher, and employer, which includes instructional objectives and a list of on-the-job and in-school learning experiences; a workstation reflecting equipment, skills, and tasks that are relevant to the occupation that the student has chosen as a career goal. The student must receive compensation for work performed.

The particular outcomes and student performance standards that the handicapped student must master to earn credit must be specified in the student's individual education plan (IEP). Additional credits may be earned when outcomes and standards are mastered, in accordance with the requirements indicated in subsequent IEPs. The job title for which the student is being trained must be designated in the IEP.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the forestry, natural-resources, and environmental-protection industries.
11. Practice forestry and natural-resources safety.
12. Operate, maintain, and repair machinery, equipment, and facilities.
13. Identify land boundaries and perform basic surveying operations.
14. Read and interpret aerial photographs and maps.
15. Identify major ecosystems of Florida.
16. Assist in determining the quality and quantity of water resources.
17. Assist in managing plant growth and reproduction.
18. Identify volumes, products, and marketing techniques.
19. Assist in managing wildlife population growth and reproduction.
20. Assist in managing the urban forest.
21. Assist in controlling and using fire in forest and other lands.
22. Assist in managing forest pests.
23. Identify applicable local, state, and federal rules and regulations and assistance programs.
24. Apply multi-use principles to forest and other lands.
25. Identify technological advances in the industry.
26. Apply business-management skills and identify appropriate legal documents.
27. Demonstrate leadership, employability, communications, and human-relations skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8118200

PROGRAM TITLE: Natural Resources and Forest Ecology POSTSECONDARY NUMBER: ______

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil-conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE FORESTRY, NATURAL-RESOURCES, AND ENVIRONMENT-PROTECTION INDUSTRIES--The student will be able to:

10.01 Identify career opportunities in forestry, natural-resources, and environmental-protection industries and their educational requirements.
10.02 Describe the importance of forestry, natural resources and environmental protection.
10.03 Identify professional organizations and trade journals in the forestry, natural-resources, and environmental-protection industries.

11.0 PRACTICE FORESTRY AND NATURAL-RESOURCES SAFETY--The student will be able to:

11.01 Identify hazards of the workplace.
11.02 Observe color-coded warnings in work area and on equipment and machinery.
11.03 Demonstrate safety procedures.
11.04 Identify safe and effective fire-extinguishing techniques.
11.05 Apply minor first aid treatment and identify emergency procedures.
11.06 Safely handle and store flammable and non-restricted chemicals.
11.07 Select personal safety equipment and appropriate clothing.
11.08 Operate machinery and equipment according to safety recommendations of manufacturer.

12.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY, EQUIPMENT, AND FACILITIES--The student will be able to:

12.01 Use the equipment-operator and repair manuals.
12.02 Service and maintain small gasoline engines.
12.03 Operate, service, and maintain tractors and equipment.
12.04 Maintain records of maintenance and repair of equipment and machinery.
12.05 Prepare equipment for storage.
12.06 Demonstrate proper use of shop and lab equipment.
12.07 Perform minor welding repairs using arc and oxygen-acetylene equipment.
12.08 Repair and maintain facilities.
12.09 Use two-way radio equipment.

13.0 IDENTIFY LAND BOUNDARIES AND PERFORM BASIC SURVEYING OPERATIONS--The student will be able to:

13.01 Make linear measurements of land.
13.02 Set up levels and perform basic surveying operations.
13.03 Mark boundaries and corners by using paint or by blazing.
13.04 Calculate area of measured land.
13.05 Plot land area using legal land description.

14.0 READ AND INTERPRET AERIAL PHOTOGRAPHS AND MAPS--The student will be able to:

14.01 Interpret the terms, symbols, and scales used on soil and topographic maps.
14.02 Use maps and aerial photographs for determining acreage.
14.03 Use aerial photographs to identify major timber types and land features.
14.04 Interpret legal descriptions for land in Florida.

15.0 IDENTIFY MAJOR ECOSYSTEMS OF FLORIDA--The student will be able to:

15.01 Identify common plant and animal species of major ecosystems.
15.02 Identify habitats of the most endangered plant and animal species in Florida.

16.0 ASSIST IN DETERMINING THE QUALITY AND QUANTITY OF WATER RESOURCES--The student will be able to:

16.01 Identify the hydrologic cycle and major uses for water.
16.02 Assist in identifying present and potential sources of water pollution in the local area.
16.03 Assist in determining the quality of a given sample of water.
16.04 Calculate the volume and surface area of ponds, lakes, and streams.
16.05 Assist in planning the improvements of waterways, ponds, stream banks, and shorelines.

17.0 ASSIST IN MANAGING PLANT GROWTH AND REPRODUCTION--The student will be able to:

17.01 Take soil samples representative of an area, correctly complete soil data forms, and submit them for laboratory analysis.
17.02 Test soil for acidity or alkalinity and recommend proper soil additives to correct the pH level.
17.03 Determine the appropriate conservation management practices for planting a particular area.
17.04 Determine land classes according to soil classification standards.
17.05 Select method of, and assist in, site preparation.
17.06 Care for seedling from nursery to planting.
17.07 Plant tree seedlings, using hand or mechanical planter.
17.08 Identify methods of production and assist in producing plants.
17.09 Explain the organic cycle occurring in nature.
17.10 Explain requirements for natural regeneration of plant species.
17.11 Maintain selected plants.

18.0 IDENTIFY VOLUMES, PRODUCTS, AND MARKETING TECHNIQUES--The student will be able to:

18.01 Identify the products made from trees and other natural resources and their value.
18.02 Select and mark trees to be removed in timber-stand improvement.
18.03 Conduct a simple cruise.
18.04 Calculate volume and value of timber.
18.05 Identify components of timber-sales contracts.
18.06 Identify methods of harvesting and erosion prevention.
18.07 Determine site quality and growth rate for a timber stand.

19.0 ASSIST IN MANAGING WILDLIFE POPULATION GROWTH AND REPRODUCTION--The student will be able to:

19.01 Identify private, state, and federal agencies that are involved in animal wildlife conservation.
19.02 Identify species of land and aquatic wildlife common to Florida and classify them as game, nongame, endangered, or threatened.
19.03 Describe the characteristics of wildlife population dynamics.
19.04 Conduct a population survey of a wildlife species.
19.05 Identify appropriate management practices for wildlife habitat.
19.06 Interpret wildlife, game, and fishing laws, rules, and regulations.
19.07 Identify pests, insects, and diseases of common wildlife species.

20.0 ASSIST IN MANAGING THE URBAN FOREST--The student will be able to:

20.01 Assist in properly planting/transplanting trees in the urban landscape.
20.02 Demonstrate proper tree pruning, trimming, and fertilization techniques.
20.03 Describe the procedure for an urban tree inventory.
20.04 Describe the basic requirements for a tree-protection ordinance.
20.05 Develop a vegetative plan for improving wildlife habitat in urban areas.

21.0 ASSIST IN CONTROLLING AND USING FIRE IN FORESTS AND OTHER LANDS--The student will be able to:

21.01 Identify major causes of wildfire.
21.02 Assist in determining and correcting potential fire danger in forests and other lands.
21.03 Describe personal safety procedures for forest fire fighters.
21.04 Use swatter, rake, portable water pack, and shovel to fight fire directly and counter fire for indirect attack.
21.05 Explain uses of prescribed burning in forest and wildlife management.
21.06 Develop a plan for a prescribed burn, including desirable burning conditions, permits, map, and fire lines.
21.07 Identify the burning assistance that is available from the Division of Forestry.

22.0 ASSIST IN MANAGING FOREST PESTS--The student will be able to:

22.01 Identify common pests, insects, and diseases.
22.02 Assist with control of common pests.
22.03 Assist with chemical, mechanical, and other controls of weed species.

23.0 IDENTIFY APPLICABLE LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS AND ASSISTANCE PROGRAMS--The student will be able to:

23.01 Identify applicable land-use and zoning regulations.
23.02 Identify agencies affecting land and wildlife utilization (e.g., DNR, DER, EPA).
23.03 Identify agencies regulating employee/employer (e.g., OSHA).

24.0 APPLY MULTI-USE PRINCIPLES TO FOREST AND OTHER LANDS--The student will be able to:

24.01 Identify types of ownership of land and ownership rights.
24.02 Identify legal responsibilities for private and public land owners when land is used by the public.
24.03 Identify different types of leases and their necessary components.
24.04 Prepare a complete inventory of the renewable natural resources for a given site.
24.05 Assist in preparing a multiple use plan for forests and other lands.
24.06 Demonstrate safe use and maintenance for common outdoor equipment, including firearms.
24.07 Interpret park/campground rules, regulations, and historical and natural features for park visitors.

25.0 IDENTIFY TECHNOLOGICAL ADVANCES IN THE INDUSTRY--The student will be able to:

25.01 Identify and use basic computer programs.
25.02 Identify satellite surveying operations and laser systems.
25.03 Identify satellite thermal infrared imagery.
25.04 Identify computer mapping systems and geographic-information systems.

26.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

26.01 Complete basic business records.
26.02 Demonstrate use of banking procedures.
26.03 Identify personal/business liability and the use of liability insurance.
26.04 Identify applicable insurance requirements.
26.05 Identify applicable personal/business tax liability.
26.06 Complete basic personal/business tax liability forms.
26.07 Identify requirements of Greenbelt and Homestead Taxation.
26.08 Interpret enterprise budgets and amortization tables.
26.09 Identify characteristics of legal instruments (i.e., contracts, deeds, and leases).
26.10 Complete supervised agricultural experience (SAE) records.

27.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

27.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
27.02 Identify acceptable work habits (ethics) and desired personal characteristics.
27.03 Demonstrate acceptable employee-hygiene habits.
27.04 Secure information about a job.
27.05 Complete a job application.
27.06 Demonstrate competence in job-interview techniques.
27.07 Demonstrate proper office procedures.
27.08 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
27.09 Demonstrate how to appropriately make a career change.
27.10 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — COURSE CREDIT: 1

PROGRAM TITLE: Natural Resources and Forest Ecology — PROGRAM NUMBER: 8118200

COURSE TITLE: Agriscience Foundations — COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of the industry; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil-conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.

AGRISCIENCE FOUNDATIONS - Continued

09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

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STUDENT PERFORMANCE STANDARDS

EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture

COURSE CREDIT: 1

PROGRAM TITLE: Natural Resources and Forest Ecology

PROGRAM NUMBER: 8118200

COURSE TITLE: Forest Ecosystems

COURSE NUMBER: 8118210

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of career identification; safety; operation and maintenance of tools and equipment; measure and calculation of land areas; surveying; aerial photography; map reading; water resources; soils and land classification; wood products; tree planting; forest pests; land use; computer applications; record keeping; and leadership skills.

10.0 DESCRIBE THE FORESTRY, NATURAL-RESOURCES, AND ENVIRONMENTAL-PROTECTION INDUSTRIES--The student will be able to:

10.01 Identify career opportunities in forestry, natural-resources, and environmental-protection industries and their educational requirements.
10.02 Describe the importance of forestry, natural resources and environmental protection.
10.03 Identify professional organizations and trade journals in forestry, natural-resources and environmental-protection industries.

11.0 PRACTICE FORESTRY AND NATURAL-RESOURCES SAFETY--The student will be able to:

11.01 Identify hazards of the workplace.
11.02 Observe color-coded warnings in work areas and on equipment and machinery.
11.03 Demonstrate safety procedures.
11.04 Identify safe and effective fire-extinguishing techniques.
11.05 Apply minor first aid treatment and identify emergency procedures.
11.06 Safely handle and store flammable and non-restricted chemicals.
11.07 Select personal safety equipment and appropriate clothing.
11.08 Operate machinery and equipment according to safety recommendations of manufacturer.

12.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY, EQUIPMENT, AND FACILITIES--The student will be able to:

12.01 Use the equipment operator and repair manuals.
12.02 Service and maintain small gasoline engines.
12.03 Operate, service, and maintain tractors and equipment.
12.06 Demonstrate proper use of shop and lab equipment.
12.07 Perform minor welding repairs using arc and oxygen-acetylene equipment.
12.09 Use two-way radio equipment.

13.0 IDENTIFY LAND BOUNDARIES AND SURVEYING--The student will be able to:

13.01 Make linear measurements of land.
13.02 Set up levels and perform basic surveying operations.
13.03 Mark boundaries and corners by using paint or by blazing.
13.04 Calculate area of measured land.
13.05 Plot land area using legal land description.

14.0 READ AND INTERPRET AERIAL PHOTOGRAPHS AND MAPS--The student will be able to:

14.01 Interpret the terms, symbols, and scales used on soil and topographic maps.
14.04 Interpret legal descriptions for land in Florida.

16.0 ASSIST IN DETERMINING THE QUALITY AND QUANTITY OF WATER RESOURCES--The student will be able to:

16.01 Identify the hydrologic cycle and major uses for water.
16.02 Assist in identifying present and potential sources of water pollution in local area.

17.0 ASSIST IN MANAGING PLANT GROWTH AND REPRODUCTION--The student will be able to:

17.01 Take soil samples representative of an area, correctly complete soil data forms, and submit them for laboratory analysis.
17.02 Test soil for acidity or alkalinity and recommend proper soil additives to correct the pH level.
17.03 Determine the appropriate conservation management practices for planting a particular area.
17.04 Determine land classes according to soil classification standards.
17.05 Select method of, and assist in, site preparation.
17.06 Care for seedling from nursery to planting.
17.07 Plant tree seedlings using hand or mechanical planter.

18.0 IDENTIFY VOLUMES, PRODUCTS, AND MARKETING TECHNIQUES--The student will be able to:

18.01 Identify the products made from trees and other natural resources and their value.
18.02 Select and mark trees to be removed in timber-stand improvement.

20.0 ASSIST IN MANAGING THE URBAN FOREST--The student will be able to:

20.01 Assist in properly planting/transplanting trees in the urban landscape.
20.02 Demonstrate proper tree pruning, trimming, and fertilization techniques.

21.0 ASSIST IN CONTROLLING AND USING FIRE IN FORESTS AND OTHER LANDS--The student will be able to:

21.01 Identify major causes of wildfire.
21.02 Assist in determining and correcting potential fire danger on forests and other lands.

22.0 ASSIST IN MANAGING FOREST PESTS--The student will be able to:

22.01 Identify common pests, insects, and diseases.

23.0 IDENTIFY APPLICABLE LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS AND ASSISTANCE PROGRAMS--The student will be able to:

23.01 Identify applicable land-use and zoning regulations.
23.02 Identify agencies affecting land and wildlife utilization (e.g., DNR, DER, EPA).
23.03 Identify agencies regulating employee/employer (e.g., OSHA).

24.0 APPLY MULTI-USE PRINCIPLES TO FOREST AND OTHER LANDS--The student will be able to:

24.01 Identify types of ownership of land and ownership rights.
24.02 Identify legal responsibilities for private and public land owners when land is used by the public.
24.03 Identify different types of leases and their necessary components.
24.04 Prepare and complete inventory of the renewable natural resources for a given site.
24.05 Assist in preparing a multiple use plan for forests and other lands.

25.0 IDENTIFY TECHNOLOGICAL ADVANCEMENTS IN THE INDUSTRY--The student will be able to:

25.01 Identify and use basic computer programs.

26.0 APPLY BUSINESS-MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

26.01 Complete basic business records.
26.02 Demonstrate use of banking procedures.
26.03 Identify personal/business liability and use of liability insurance.
26.04 Identify applicable insurance requirements.
26.05 Identify applicable personal/business tax liability.
26.10 Complete supervised agricultural experience (SAE) records.

27.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

27.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
27.02 Identify acceptable work habits (ethics) and desired personal characteristics.
27.03 Demonstrate acceptable employee-hygiene habits.
27.04 Secure information about a job.
27.05 Complete a job application.
27.06 Demonstrate competence in job-interview techniques.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Natural Resources and Forest Ecology	PROGRAM NUMBER:	8118200
COURSE TITLE:	Forest and Natural Resources	COURSE NUMBER:	8118220

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of safety; facility repair; aerial-photography interpretation; plant and animal identification; ecosystems; water quality; forest production; timber cruising; harvesting; site quality; regulations; conservation; wildlife and fish; urban forestry; prescribed burning; pest control; thermal imagery; tax laws; and leadership.

11.0 PRACTICE FORESTRY AND NATURAL RESOURCE SAFETY--The student will be able to:

11.05 Apply minor first aid treatment and identify emergency procedures.
11.06 Safely handle and store flammable and nonrestricted chemicals.
11.08 Operate machinery and equipment according to safety recommendations of manufacturer.

12.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY, EQUIPMENT, AND FACILITIES--The student will be able to:

12.03 Operate, service, and maintain tractors and equipment.
12.04 Maintain records of maintenance and repair of equipment and machinery.
12.05 Prepare equipment for storage.
12.07 Perform minor welding repairs using arc and oxygen-acetylene equipment.
12.08 Repair and maintain facilities.

14.0 READ AND INTERPRET AERIAL PHOTOGRAPHS AND MAPS--The student will be able to:

14.02 Use maps and aerial photographs for determining acreage.
14.03 Use aerial photographs to identify major timber types and land features.

15.0 IDENTIFY MAJOR ECOSYSTEMS OR FLORIDA--The student will be able to:

15.01 Identify common plant and animal species of major ecosystems.
15.02 Identify habitats of the most endangered plant and animal species in Florida.

16.0 ASSIST IN DETERMINING THE QUALITY AND QUANTITY OF WATER RESOURCES--The student will be able to:

16.03 Assist in determining the quality of a given sample of water.
16.04 Calculate the volume and surface area of ponds, lakes, and streams.
16.05 Assist in planning the improvements of waterways, ponds, stream banks, and shorelines.

17.0 ASSIST IN MANAGING PLANT GROWTH AND REPRODUCTION--The student will be able to:

17.08 Identify methods of production and assist in producing plants.
17.09 Explain the organic cycle occurring in nature.
17.10 Explain requirements for natural regeneration of plant species.
17.11 Maintain selected plants.

18.0 IDENTIFY VOLUMES, PRODUCTS, AND MARKETING TECHNIQUES--The student will be able to:

18.03 Conduct a simple cruise.
18.04 Calculate volume and value of timber.
18.05 Identify components of timber-sales contracts.
18.06 Identify methods of harvesting and erosion prevention.
18.07 Determine site quality and growth rate for a timber stand.

19.0 ASSIST IN MANAGING WILDLIFE POPULATION GROWTH AND REPRODUCTION--The student will be able to:

19.01 Identify private, state, and federal agencies that are involved in animal wildlife conservation.
19.02 Identify species of land and aquatic wildlife common to Florida and classify them as game, nongame, endangered, or threatened.
19.03 Describe the characteristics of wildlife population dynamics.
19.04 Conduct a population survey of a wildlife species.
19.05 Identify appropriate management practices for wildlife habitat.
19.06 Interpret wildlife, game, and fishing laws, rules and regulations.
19.07 Identify pests, insects, and diseases of common wildlife species.

20.0 ASSIST IN MANAGING THE URBAN FOREST--The student will be able to:

20.03 Describe the procedure for an urban tree inventory.
20.04 Describe the basic requirements for a tree-protection ordinance.
20.05 Develop a vegetative plan for improving wildlife habitat in urban areas.

21.0 ASSIST IN CONTROLLING AND USING FIRE IN FORESTS AND OTHER LANDS--The student will be able to:

21.03 Describe personal safety procedures for forest fire fighters.
21.04 Use swatter, rake, portable water pack, and shovel to fight fire directly and counter fire for indirect attack.
21.05 Explain uses of prescribed burning in forest and wildlife management.
21.06 Develop a plan for a prescribed burn, including desirable burning conditions, permits, map, and fire lines.
21.07 Identify burning assistance available from Division of Forestry.

22.0 ASSIST IN MANAGING FOREST PESTS--The student will be able to:

22.01 Identify common pests, insects, and diseases.
22.02 Assist with control of common pests.
22.03 Assist with chemical, mechanical, and other controls of weed species.

23.0 IDENTIFY APPLICABLE LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS AND ASSISTANCE PROGRAMS--The student will be able to:

23.01 Identify applicable land-use and zoning regulations.
23.02 Identify agencies affecting land and wildlife utilization (e.g., DNR, DER, EPA).
23.03 Identify agencies regulating employee/employer (e.g., OSHA).

24.0 APPLY MULTI-USE PRINCIPLES TO FOREST AND OTHER LANDS--The student will be able to:

24.06 Demonstrate safe use and maintenance for common outdoor equipment, including firearms.
24.07 Interpret park/campground rules, regulations, and historical and natural features for park visitors.

25.0 IDENTIFY TECHNOLOGICAL ADVANCES IN THE INDUSTRY--The student will be able to:

25.02 Identify satellite surveying operations and laser systems.
25.03 Identify satellite thermal infrared imagery.
25.04 Identify computer mapping systems and geographic-information systems.

26.0 APPLY BUSINESS MANAGEMENT SKILLS AND IDENTIFY APPROPRIATE LEGAL DOCUMENTS--The student will be able to:

26.06 Complete basic personal/business tax liability forms.
26.07 Identify requirements of Greenbelt and Homestead Taxation.
26.08 Interpret enterprise budgets and amortization tables.
26.09 Identify characteristics of legal instruments; contracts, deeds and leases.
26.10 Complete supervised agricultural experience (SAE) records.

27.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, AND HUMAN-RELATIONS SKILLS--The student will be able to:

27.07 Demonstrate proper office procedures.
27.08 Demonstrate appropriate response to criticism from employer, supervisor, or other persons in the workplace.
27.09 Demonstrate how to appropriately make a career change.
27.10 Demonstrate knowledge of how to appropriately make a career change, including resigning from a job.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Natural Resources Technology

CODE NUMBER: Secondary ______ Postsecondary ______

Florida CIP 0103.020101

SECONDARY SCHOOL CREDITS ______ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): _____6-9 _____9-12 _____Postsecondary Adult Vocational

X Postsecondary Vocational ______ Other ______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as soil conservationist aide (Industry Title), aquatic biologists (041.061-022), expedition supervisors (461.134-014), pollution-control technicians (029.261-014), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to manage, conserve and improve natural resources such as air, soil, land, water, fish and wildlife for economic and recreational purposes. The subject matter includes maps and aerial photographs, recordkeeping, data and information analysis, equipment and tool management, laws and leadership, and employability, communication, human and public relations skills.

II. LABORATORY ACTIVITIES: Agricultural shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, surveying instruments, soil, water and air sampling instruments, tractors and field equipment, forest fire control equipment and field hand tools.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate of science degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Gather and analyze field data for soil and water conservation plans.
02. Collect and test soil, water, and air samples and assist in evaluation of the results.
03. Perform preliminary survey layout work.
04. Interpret maps, aerial photographs and legal descriptions.
05. Demonstrate conservation practices to landowners.
06. Prepare and analyze records and reports.
07. Interpret technical information and incorporate into management practices.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to: Continued

08. Prepare land capability map.
09. Manage the operation and maintenance of equipment.
10. Identify wildlife populations.
11. Manage the maintenance of facilities and grounds.
12. Supervise fire fighting crew.
13. Supervise and train employees in their job and job safety.
14. Interpret and apply laws and regulations relative to the operation.
15. Demonstrate leadership, employability, communication, human and public relations skills.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
SECONDARY NUMBER: ______________
PROGRAM TITLE: Natural Resources Technology
POSTSECONDARY NUMBER: 0103.020101

01.0 GATHER AND ANALYZE FIELD DATA FOR SOIL AND WATER CONSERVATION PLANS--The student will be able to:

01.01 Determine significant erosion hazards and other problems related to protection of the environment.
01.02 Gather drainage area data for watersheds.
01.03 Record physical and topographical data.
01.04 Measure stream flow.
01.05 Measure water level.
01.06 Determine soil loss.

02.0 COLLECT AND TEST, SOIL, WATER AND AIR SAMPLES AND ASSIST IN EVALUATION OF THE RESULTS--The student will be able to:

02.01 Collect soil samples.
02.02 Collect water samples.
02.03 Interpret analysis of soil and water samples.
02.04 Collect test pit information for building purposes.
02.05 Collect air samples.
02.06 Interpret analysis of air samples.
02.07 Interpret basic soil differences.

03.0 PERFORM PRELIMINARY SURVEY AND LAYOUT WORK--The student will be able to:

03.01 Use hand level or engineering level and tape.
03.02 Determine volumes of earth.
03.03 Locate best site for engineering practices.
03.04 Measure degree of slope.
03.05 Evaluate degree of erosion.
03.06 Make borings and vegetative studies of wet areas.
03.07 Procure simple easements.

04.0 INTERPRET MAPS, AERIAL PHOTOGRAPHS AND LEGAL DESCRIPTIONS--The student will be able to:

04.01 Locate and identify field boundaries.
04.02 Use topographical and aerial photographs.
04.03 Record acreage in field by making measurements.
04.04 Interpret legal land descriptions.
04.05 Prepare land capability maps from soil maps and data.

05.0 DEMONSTRATE CONSERVATION PRACTICES TO LANDOWNERS--The student will be able to:

05.01 Adapt conservation practices.
05.02 Demonstrate use of equipment for installation practices.
05.03 Demonstrate terracing techniques.
05.04 Determine sites best suited for tree planting.
05.05 Demonstrate importance of drains and water courses.
05.06 Demonstrate seeding and land preparation conservation practices.
05.07 Describe soil and water conservation irrigation practices.
05.08 Compare various range use practices.
05.09 Interpret technical information for landowner and explain.

06.0 PREPARE AND ANALYZE RECORDS AND REPORTS--The student will be able to:

06.01 Keep daily record of work accomplished.
06.02 Maintain farm plan records.
06.03 Assist with reports.
06.04 Prepare reports and presentations.
06.05. Analyze reports and records.

07.0 INTERPRET TECHNICAL INFORMATION AND INCORPORATE INTO MANAGEMENT PRACTICES--The student will be able to:

07.01 Keep and maintain a file of current technical information from universities, governmental agencies and commercial companies.
07.02 Maintain a reference file for periodicals and other publications.
07.03 Select and attend seminars and workshops to update skills and knowledge.
07.04 List sources of technical and professional information.
07.05 Interpret design specifications and apply them.

08.0 PREPARE LAND CAPABILITY MAP--The student will be able to:

08.01 Prepare land capability maps using appropriate soil map symbols.
08.02 Assist in determining land capability from maps and observation.
08.03 Calculate soil loss.

09.0 MANAGE THE OPERATION AND MAINTENANCE OF EQUIPMENT--The student will be able to:

09.01 Assess needs for the purchase of new or replacement equipment.
09.02 Manage the maintenance of tools and equipment.
09.03 Train workers to safely operate and maintain tools and equipment.
09.04 Develop a general maintenance schedule.

10.0 IDENTIFY WILDLIFE POPULATIONS--The student will be able to:

10.01 Identify wildlife species and habitat.
10.02 Describe the characteristics of wildlife populations.
10.03 Recognize and interpret wildlife and game laws and regulations.

11.0 MANAGE THE MAINTENANCE OF FACILITIES AND GROUNDS--The student will be able to:

11.01 Develop a general maintenance schedule for facilities and grounds.
11.02 Supervise employees in maintenance and repair activities.
11.03 Arrange for repairs and services.
11.04 Order materials and supplies.

12.0 SUPERVISE FIRE FIGHTING CREWS--The student will be able to:

12.01 Determine fire potential in a given area.
12.02 Use appropriate fire control measures.
12.03 Identify and correct potential fire dangers.
12.04 Supervise maintenance of firelanes.
12.05 Assist in the supervision of fire fighting crews and support services.

13.0 SUPERVISE AND TRAIN EMPLOYEES IN THEIR JOB AND JOB SAFETY--The student will be able to:

13.01 Maintain open communications.
13.02 Set up work schedules.
13.04 Provide instruction and training for employees.
13.05 Maintain personnel records.
13.06 Maintain employee welfare and safety through training and information.

14.0 INTERPRET AND APPLY LAWS AND REGULATIONS RELATIVE TO THE OPERATION--The student will be able to:

14.01 List agencies responsible for administering regulations relative to occupation.
14.02 Interpret laws and regulations for landowners.
14.03 Secure permits and certificates required by law.

15.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, HUMAN AND PUBLIC RELATIONS SKILLS--The student will be able to.

15.01 Conduct a job search.
15.02 Secure information about a job.
15.03 Identify documents that may be required when applying for a job.
15.04 Complete a job application form correctly.
15.05 Demonstrate competence in job interview techniques.
15.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other habits.
15.07 Identify acceptable work habits.
15.08 Demonstrate knowledge of how to make job changes appropriately.
15.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Natural Resources, Wildlife Conservation and Management

CODE NUMBER: Secondary ______ Postsecondary FNR0030

Florida CIP 0103.020102

SECONDARY SCHOOL CREDITS ______ COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): _____6-9 _____9-12 X Postsecondary Adult Vocational

______ Postsecondary Vocational X Other 30,31

CERTIFICATION COVERAGE: VOC AGRI @4
AGRI @2 @4
AGRI RES @7 G
AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as fish and game wardens (63041487), soil conservationist aides (040.061-054), aquarists (449.674-010), trappers, animal (461.084-014), underwater hunter, trappers (461.664-010) wildlife conservation aides or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to conserve and/or improve natural resources such as air, soil, water, land, fish and wildlife for economic and recreational purposes. Subject matter also includes soil, air and water data gathering, surveying, map and aerial photography reading, record keeping, equipment operation, laws and regulations, as well as leadership, communication, employability and human relations skills.

II. LABORATORY ACTIVITIES: Shop and land laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, hand and portable power carpentry tools, field hand tools, soil and water sampling instruments, forest fire control tools, surveying instruments and tractors with field attachments.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 8.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

To be transferable statewide between institutions, this program/course must have been reviewed, and a "transfer value" assigned the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific program or course articulation agreements with each other.

The typical length of this program for the average achieving student is 900 hours.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Gather field data for soil, air and water conservation plans.
02. Layout and inspect routine conservation practices.
03. Assist surveyor.
04. Read maps, aerial photographs and legal descriptions.
05. Keep records and data.
06. Operate and maintain tools, equipment and vehicles.
07. Identify wildlife and plants.
08. Perform general construction and maintenance duties.
09. Aid in preventing and fighting wildfire.
10. Observe laws and regulations relative to the operation.
11. Mark or tag animals and plants for identification
12. Demonstrate leadership, communication, employability and human relations skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: ________

PROGRAM TITLE: Natural Resources, Wildlife Conservation and Management POSTSECONDARY NUMBER: FNR0030

01.0 GATHER AND ANALYZE FIELD DATA FOR SOIL AND WATER CONSERVATION PLANS--The student will be able to:

01.01 Gather drainage area data.
01.02 Complete field data sheet.
01.03 Record physical and topographical data.
01.04 Interpret basic soil differences.
01.05 Determine cropping rotation and system.
01.06 Measure water level.
01.07 Measure stream flow.
01.08 Collect soil and water samples for analysis.
01.09 Determine significant erosion hazards and other problems associated with the protection of the environment.

02.0 LAYOUT AND INSPECT ROUTINE CONSERVATION PRACTICES--The student will be able to:

02.01 Assist in laying out contour strips, grass waterways, diversion terraces, and cropland terraces.
02.02 Check compliance of conservation practices to specifications.
02.03 Assist and guide equipment operators in installing routine practices.
02.04 Make recommendations for applied practices.

03.0 ASSIST SURVEYOR--The student will be able to:

03.01 Mark measuring points with paint, sticks or stakes.
03.02 Measure distances between survey points.
03.03 Cut or clear brush from survey lines.
03.04 Hold level rod or stadia rod at designated points.
03.05 Move rod or target following hand or verbal signals.
03.06 Call out reading to note keeper or record information.
03.07 Set up and care for surveyors equipment and supplies.

04.0 READ MAPS, AERIAL PHOTOGRAPHS AND LEGAL DESCRIPTIONS--The student will be able to:

04.01 Measure acreage.
04.02 Use photo scales.
04.03 Record measurements on photos or in records.
04.04 Make rough tracings of maps.
04.05 Interpret a real estate or land descriptions.
04.06 Determine locations and other information from maps.

05.0 KEEP RECORDS AND DATA--The student will be able to:

05.01 Keep daily record of work accomplished.
05.02 Maintain plan records.
05.03 Assist with reports.
05.04 Prepare requisitions.
05.05 Keep personnel records and information.
05.06 Record field date.

06.0 OPERATE AND MAINTAIN TOOLS, EQUIPMENT AND VEHICLES--The student will be able to:

06.01 Identify and use hand and power tools safely.
06.02 Operate tractors and equipment safely.
06.03 Maintain records of use, maintenance and repair of machinery and equipment.
06.04 Order services and materials.
06.05 Maintain and service tools and equipment.

07.0 IDENTIFY WILDLIFE AND PLANTS--The student will be able to:

07.01 Identify major plant life in a given area and its relationship to other resources.
07.02 Name and identify habitats of endangered plant species in Florida.
07.03 Recognize and interpret wildlife game laws, rules and regulations.
07.04 Identify species of wildlife common to Florida and classify them as game, non-game, endangered, or threatened.
07.05 Describe the characteristics of wildlife and plant populations.
07.06 Evaluate, improve, and maintain the habitat and physical condition of selected plant or wildlife species.

08.0 PERFORM GENERAL CONSTRUCTION AND MAINTENANCE DUTIES--The student will be able to:

08.01 Maintain and repair fences, gates and pens.
08.02 Maintain paths, roads and grades.
08.03 Maintain and repair waterways, ditches and culverts.
08.04 Plan daily maintenance activities.
08.05 Construct paths, walks and structures.
08.06 Operate arc and oxy-acetylene welding equipment.
08.07 Form and pour concrete.
08.08 Maintain and repair facilities.

09.0 AID IN PREVENTING AND FIGHTING WILDFIRE--The student will be able to:

09.01 Determine fire potential in a given area.
09.02 Use appropriate fire control measures.
09.03 Identify and correct potential fire dangers.
09.04 Maintain firelanes.
09.05 Assist in fighting fires.

10.0 OBSERVE LAWS AND REGULATIONS RELATIVE TO THE OPERATION--The student will be able to:

10.01 Interpret laws and regulations regarding land use.
10.02 Interpret and apply wildlife and plant laws and regulations.
10.03 Interpret rules and regulations for visitors or co-workers.

11.0 MARK OR TAG ANIMALS AND PLANTS FOR IDENTIFICATION--The student will be able to:

11.01 Construct and erect signs.
11.02 Capture and tag wildlife species.
11.03 Observe areas for signs of wildlife and plant population shifts.
11.04 Observe wildlife and plant life for diseases and pests.

12.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION AND HUMAN RELATIONS SKILLS--The student will be able to:

12.01 Conduct a job search.
12.02 Secure information about a job.
12.03 Identify documents that may be required when applying for a job.
12.04 Complete a job application form correctly.
12.05 Demonstrate competence in job interview techniques.
12.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
12.07 Identify acceptable work habits.
12.08 Demonstrate knowledge of how to make job changes appropriately.
12.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture
FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1992
PROGRAM TITLE: Nursery Operations
CODE NUMBER: Secondary 8121200 — Postsecondary ORV0310
Florida CIP 0101.060600

SECONDARY SCHOOL CREDITS 6 — COLLEGE CREDITS ____ — POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____ 7-9 ____ 9-12 X Postsecondary Adult Vocational
____ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:	10-12,30,31	VOC AGRI @4 HORTICULT @7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 HORTICULT @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as horticultural-specialty growers, field (405.161-014), horticultural-specialty growers, inside (405.161-018), supervisors, horticultural-specialty farming (405.131-010), field inspectors, disease and insect control (408.687-010), horticultural workers II (405.687-014), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to produce, process and market plants, shrubs and trees used principally for ornamental, recreational and aesthetic purposes. Subject matter includes fertilization, irrigation, harvesting and marketing, mechanics, facility maintenance, pest control, plant identification, as well as leadership, communication, employability, and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8121510	Introductory Horticulture
8121520	Horticultural Science
8121210	Nursery Operations 1
8121220	Nursery Operations 2
8121230	Nursery Operations 3

II. LABORATORY ACTIVITIES: Agricultural shop and plant nursery laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, carpentry hand and portable power tools, arc welders, oxy-acetylene torches, tractors and field equipment, chemical applicators, power sprayers and irrigation equipment.

III. SPECIAL NOTE: FFA (secondary) and the National Post-secondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

III. SPECIAL NOTE: Continued

Because of the production and marketing cycle of the ornamental horticultural industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation the which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

The asterisk (*) identifies student performance standards that are additions to the core and are unique to this program.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the horticulture industry.
11. Identify and classify plants.
12. Propagate plants.
13. Identify growing media and apply fertilizers.
14. Irrigate plants and turf.
15. Control pests.
16. Control plant growth.
17. Harvest, transport, and install plant materials.
18. Operate, repair, and maintain tools and equipment.
19. Demonstrate leadership, employability, communications, and human-relations skills.
20. Describe plant physiology and growth.
21. Prepare growing media and seedbeds.
22. Propagate nursery stock.
23. Prune and shape nursery stock.

IV. Intended Outcomes - Continued

24. Irrigate plants.
25. Harvest, process and ship nursery stock.
26. Market nursery stock.
27. Operate, repair, and maintain nursery equipment and facilities.
28. Fertilize nursery stock.
29. Maintain and analyze records.
30. Demonstrate proficiency in applying basic mathematics, science and communication skills to agriculture problem solving.

STUDENT PERFORMANCE STANDARDS　　EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture　　SECONDARY NUMBER: 8121200
PROGRAM TITLE: Nursery Operations　　POSTSECONDARY NUMBER: ORV0310

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.

05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.
* 07.08 Maintain job records, daily log sheets, and inventory.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.
10.04 Describe regulations that affect the horticulture industry.
10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Levels I and II.
11.02 Classify plants botanically and list environmental preferences of plants (e.g., shade, sun, wind, moisture, salt). Levels I and II.
* 11.03 Classify plants as monocots or dicots.
* 11.04 Classify plants as annuals, biennials, and perennials.
* 11.05 Identify plants appropriate to a region.
* 11.06 Classify plants according to growth habit.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).
12.06 Transplant rooted propagation materials.
* 12.07 Identify asexual and sexual plant propagation methods.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.03 Collect soil samples for laboratory analysis and interpret the results.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.08 Develop a fertilization schedule.
13.09 Determine rate of fertilizer application.
13.10 Apply fertilizer and soil amendments.
13.11 Apply special fertilization methods appropriate to a region or plant group.
13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.02 Identify sources and quality of water for irrigation.
14.03 Identify irrigation components and types of systems.
14.04 Install irrigation-system components.
14.05 Irrigate plants at recommended rates.
14.06 Identify procedures for measuring water-application rates.
14.07 Repair irrigation systems.
14.08 Identify drainage components for different types of drainage systems.
* 14.09 Install irrigation systems with control valves and clocks.
* 14.10 Install drainage system and identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.
15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.

15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.
* 15.12 Report insect and disease damage.
* 15.13 Interpret and use spray compatibility chart.
* 15.14 Determine appropriate time, frequency, method, and amount of application of controls.
* 15.15 Identify pesticide, herbicide, and chemical spray damage.
* 15.16 Identify vertebrate damage and causal agents.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.02 Identify and select chemical growth regulators.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.
17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.
* 17.06 Install ornamental plants per a landscape plan.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment pre-operational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.
18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.
* 18.06 Identify, operate, and maintain tractor and power equipment.
* 18.07 Load, secure, and transport equipment.
* 18.08 Demonstrate safety precautions while working with tools and equipment.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.
* 19.09 Conduct a job search.
* 19.10 Secure information about a job.

20.0 DESCRIBE PLANT PHYSIOLOGY AND GROWTH--The student will be able to:

20.01 Describe woody and herbaceous plants.
20.02 Identify parts of the plant.
20.03 List the requirements for healthy plant growth.
20.04 Identify taproot and fibrous root systems.
20.05 Identify the difference between evergreen and deciduous plants.

21.0 PREPARE GROWING MEDIA AND SEEDBEDS--The student will be able to:

21.01 Mix rooting and growing media according to plant requirements.

21.02 Sterilize rooting, potting, and growing media.
21.03 Collect and test a soil sample from field and potting media.
21.04 Adjust Ph and nutritional levels of media.
21.05 Prepare planting beds and sites.
21.06 Fill and level benches and pots with media.
21.07 Demonstrate sanitation practices when handling and storing plant media materials.

22.0 PROPAGATE NURSERY STOCK--The student will be able to:

22.01 Prepare flats and a seedbed and plant seeds.
22.02 Prepare a rooting bed.
22.03 Prepare propagation materials (seeds, cuttings, scions, etc.) for planting.
22.04 Demonstrate sanitation and safety practices when propagating.

23.0 PRUNE AND SHAPE NURSERY STOCK--The student will be able to:

23.01 Prune plants to achieve desired growth.
23.02 Select and use chemical growth regulators.
23.03 Identify techniques for pruning specialty items (topiary, espalier, bonsai, etc.).
23.04 Prune plants at appropriate time.
23.05 Demonstrate sanitation and safety practices when pruning.

24.0 IRRIGATE PLANTS--The student will be able to:

24.01 Set up irrigation system for propagation area.
24.02 Set up irrigation system for greenhouse or enclosed structure.
24.03 Set up irrigation system for shadehouse.
24.04 Set up irrigation system for retail display.
24.05 Set up irrigation system for growing area.

25.0 HARVEST, PROCESS, AND SHIP NURSERY STOCK--The student will be able to:

25.01 Grade and harvest field-grown plants (ball, burlap, bare-root, "grow bags").
25.02 Identify mechanical techniques for harvesting field-grown plants (tree spade and mechanical digger).
25.03 Select, grade, and assemble container-grown plants.
25.04 Prepare for shipment, loading, and transporting harvested plant materials.
25.05 Use proper methods for preserving plant viability.
25.06 Comply with regulations regarding the inspection and movement of plant materials.
25.07 Demonstrate safety practices when harvesting, processing, and shipping nursery stock.

26.0 MARKET NURSERY STOCK--The student will be able to:

26.01 Label and merchandise plants.
26.02 Maintain clean and attractive merchandising and display areas.
26.03 Use various advertising methods to promote sales.
26.04 Take telephone orders.
26.05 Use sales catalog.
26.06 Greet customers.
26.07 Describe care and use of plants to customers.

27.0 OPERATE, REPAIR, AND MAINTAIN NURSERY EQUIPMENT AND FACILITIES--The student will be able to:

27.01 Determine equipment needs for the job.
27.02 Maintain electric motors and equipment.
27.03 Order parts and supplies.
27.04 Perform simple plumbing and electrical repairs.
27.05 Build or repair frames, benches, and other greenhouse or nursery facilities.
27.06 Demonstrate safety practices when working with equipment and facilities.

28.0 FERTILIZE NURSERY STOCK--The student will be able to:

28.01 Collect soil and leaf tissue samples for analysis.

28.02 Interpret and evaluate the results of soil and leaf tissue analysis.
28.03 Demonstrate proper handling and storage of fertilizers, observing safety precautions.

29.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

29.01 Analyze and maintain production and sales records.
29.02 Determine plant production costs.
29.03 Prepare a budget.
29.04 Prepare and maintain financial records.
29.05 Maintain current plant inventory.
29.06 Describe the use of a computer in nursery operations.

30.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING. The student will be able to:

30.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
30.02 Identify basic concepts of physics in agricultural applications.
30.03 Identify basic concepts of chemistry in agricultural applications.
30.04 Identify basic biological concepts in agricultural applications.
30.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
30.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture
COURSE CREDIT: 1

PROGRAM TITLE: Nursery Operations
PROGRAM NUMBER: 8121200

COURSE TITLE: Agriscience Foundations
COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.

09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Nursery Operations	PROGRAM NUMBER:	8121200
COURSE TITLE:	Introductory Horticulture	COURSE NUMBER:	8121510

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of career opportunities; global importance of agriculture; plant classification; propagation; growing media; nutritional needs; fertilization; irrigation; pest identification; pest control, pruning; plant installation; transplanting; safe hand-tool use; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level I.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level I.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.10 Apply fertilizer and soil amendments.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.05 Irrigate plants at recommended rates.

INTRODUCTORY HORTICULTURE - Continued

15.0 CONTROL PESTS--The student will be able to:

- 15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
- 15.02 Describe life cycles of common pests of plants.
- 15.03 Classify insects according to feeding habits.
- 15.04 Describe biological, chemical, and cultural methods of controlling plant pests.

16.0 CONTROL PLANT GROWTH--The student will be able to:

- 16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
- 16.03 Identify appropriate time to prune plants.
- 16.04 Identify and select pruning tools for the task.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

- 17.01 Determine requirements for preserving plant viability.
- 17.02 Install containerized plant materials.
- 17.03 Select and prepare plants for transportation and transplanting.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

- 18.01 Perform equipment preoperational check.
- 18.02 Identify, maintain, and safely operate hand tools and power tools.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

- 19.01 Conduct group meetings, using parliamentary procedure and public speaking skills.
- 19.02 Identify acceptable work habits and personal characteristics.
- 19.03 Identify acceptable employee hygiene habits.
- 19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Nursery Operations	PROGRAM NUMBER:	8121200
COURSE TITLE:	Horticulture Science	COURSE NUMBER:	8121520

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of industry regulations; plant classification; plant transportation; soil sampling and analysis; fertilizer calculations; recording keeping; irrigation components, water quality; drainage; integrated pest management; pesticide safety and regulations; equipment calibration; chemical growth regulators; xeriscaping; integrated landscape management; safe use of power equipment; record keeping; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

- 10.04 Describe regulations that affect the horticulture industry.
- 10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

- 11.01 Identify plants by scientific and common names. Level II.
- 11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level II.

12.0 PROPAGATE PLANTS--The student will be able to:

12.06 Transplant rooted propagation materials.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.03 Collect soil samples for laboratory analysis and interpret the results.
13.08 Develop a fertilization schedule.
13.09 Determine rate of fertilizer application.
13.11 Apply special fertilization methods appropriate to a region or plant group.
13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.02 Identify sources and quality of water for irrigation.
14.03 Identify irrigation components and types of systems.
14.04 Install irrigation system components.
14.06 Identify procedures for measuring water application rates.
14.07 Repair irrigation systems.
14.08 Identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.02 Identify and select chemical growth regulators.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Nursery Operations PROGRAM NUMBER: 8121200
COURSE TITLE: Nursery Operations 1 COURSE NUMBER: 8121210

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of plant identification and classification, propagation, irrigation, harvesting, transporting installation, plant physiology and growth and agriculture problem solving.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

- 11.03 Classify plants as monocots or dicots.
- 11.04 Classify plants as annuals, biennials, and perennials.
- 11.05 Identify plants appropriate to a region.
- 11.06 Classify plants according to growth habit.

12.0 PROPAGATE PLANTS--The student will be able to:

- 12.07 Identify asexual and sexual plant propagation methods.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

- 14.09 Install irrigation systems with control valves and clocks.
- 14.10 Install drainage system and identify drainage components for different types of drainage systems.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

- 17.06 Install ornamental plants per a landscape plan.

20.0 DESCRIBE PLANT PHYSIOLOGY AND GROWTH--The student will be able to:

- 20.01 Describe woody and herbaceous plants.
- 20.02 Identify parts of the plant.
- 20.03 List the requirements for healthy plant growth.
- 20.04 Identify taproot and fibrous root systems.
- 20.05 Identify the difference between evergreen and deciduous plants.

30.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING. The student will be able to:

- 30.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Nursery Operations PROGRAM NUMBER: 8121200
COURSE TITLE: Nursery Operations 2 COURSE NUMBER: 8121220

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of management, pest control, the operation, repair and maintenance of tools and equipment, employability skills, growing media and seedbeds, plant propagation and irrigation and agriculture problem solving.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

- 07.08 Maintain job records, daily log sheets, and inventory.

NURSERY OPERATIONS 2 - Continued

15.0 CONTROL PESTS--The student will be able to:

15.12 Report insect and disease damage.
15.13 Interpret and use spray compatibility chart.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.06 Identify, operate, and maintain tractor and power equipment.
18.07 Load, secure, and transport equipment.
18.08 Demonstrate safety precautions while working with tools and equipment.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
19.02 Identify acceptable work habits and personal characteristics.

21.0 PREPARE GROWING MEDIA AND SEEDBEDS--The student will be able to:

21.01 Mix rooting and growing media according to plant requirements.
21.02 Sterilize rooting, potting, and growing media.
21.03 Collect and test a soil sample from field and potting media.
21.04 Adjust Ph and nutritional levels of media.
21.05 Prepare planting beds and sites.
21.06 Fill and level benches and pots with media.
21.07 Demonstrate sanitation practices when handling and storing plant media materials.

22.0 PROPAGATE NURSERY STOCK--The student will be able to:

22.01 Prepare flats and a seedbed and plant seeds.
22.02 Prepare a rooting bed.
22.03 Prepare propagation materials (seeds, cuttings, scions, etc.) for planting.
22.04 Demonstrate sanitation and safety practices when propagating.

24.0 IRRIGATE PLANTS--The student will be able to:

24.01 Set up irrigation system for propagation area.
24.02 Set up irrigation system for greenhouse or enclosed structure.
24.03 Set up irrigation system for shadehouse.
24.04 Set up irrigation system for retail display.
24.05 Set up irrigation system for growing area.

30.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING. The student will be able to:

30.02 Identify basic concepts of physics in agricultural applications.
30.03 Identify basic concepts of chemistry in agricultural applications.
30.04 Identify basic biological concepts in agricultural applications.

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STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Nursery Operations	PROGRAM NUMBER:	8121200
COURSE TITLE:	Nursery Operations 3	COURSE NUMBER:	8121230

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of pest control, nursery stock pruning and shaping, harvesting, processing, shipping, marketing and fertilization, the operations, repair and maintenance of tools and equipment, maintaining and analyzing records and agriculture problem solving.

15.0 CONTROL PESTS--The student will be able to:

15.14 Determine appropriate time, frequency, method, and amount of application of controls.
15.15 Identify pesticide, herbicide, and chemical spray damage.
15.16 Identify vertebrate damage and causal agents.

23.0 PRUNE AND SHAPE NURSERY STOCK--The student will be able to:

23.01 Prune plants to achieve desired growth.
23.02 Select and use chemical growth regulators.
23.03 Identify techniques for pruning specialty items (topiary, espalier, bonsai, etc.).
23.04 Prune plants at appropriate time.
23.05 Demonstrate sanitation and safety practices when pruning.

25.0 HARVEST, PROCESS, AND SHIP NURSERY STOCK--The student will be able to:

25.01 Grade and harvest field-grown plants (ball, burlap, bare-root, "grow bags").
25.02 Identify mechanical techniques for harvesting field-grown plants (tree spade and mechanical digger).
25.03 Select, grade, and assemble container-grown plants.
25.04 Prepare for shipment, loading, and transporting harvested plant materials.
25.05 Use proper methods for preserving plant viability.
25.06 Comply with regulations regarding the inspection and movement of plant materials.
25.07 Demonstrate safety practices when harvesting, processing, and shipping nursery stock.

26.0 MARKET NURSERY STOCK--The student will be able to:

26.01 Label and merchandise plants.
26.02 Maintain clean and attractive merchandising and display areas.
26.03 Use various advertising methods to promote sales.
26.04 Take telephone orders.
26.05 Use sales catalog.
26.06 Greet customers.
26.07 Describe care and use of plants to customers.

27.0 OPERATE, REPAIR, AND MAINTAIN NURSERY EQUIPMENT AND FACILITIES--The student will be able to:

27.01 Determine equipment needs for the job.
27.02 Maintain electric motors and equipment.
27.03 Order parts and supplies.
27.04 Perform simple plumbing and electrical repairs.
27.05 Build or repair frames, benches, and other greenhouse or nursery facilities.
27.06 Demonstrate safety practices when working with equipment and facilities.

28.0 FERTILIZE NURSERY STOCK--The student will be able to:

28.01 Collect soil and leaf tissue samples for analysis.
28.02 Interpret and evaluate the results of soil and leaf tissue analysis.
28.03 Demonstrate proper handling and storage of fertilizers, observing safety precautions.

29.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

29.01 Analyze and maintain production and sales records.
29.02 Determine plant production costs.
29.03 Prepare a budget.
29.04 Prepare and maintain financial records.
29.05 Maintain current plant inventory.
29.06 Describe the use of a computer in nursery operations.

30.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING. The student will be able to:

30.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.

30.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Ornamental Horticulture Technology

CODE NUMBER: Secondary ________ Postsecondary ____________

Florida CIP 0102.040400

SECONDARY SCHOOL CREDITS _____ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS _______

APPLICABLE LEVEL(S): _____6-9 _____9-12 _____Postsecondary Adult Vocational

X Postsecondary Vocational _____ Other ____________

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as production managers (180.117-014), nursery managers (180.167-042), production superintendents (699.130-010), landscape contractors (182.167-014), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to supervise or manage the production and use of decorative plants, plant materials and associated services. Subject matter also includes plant nutrition, plant classification and identification, propagation, pest control, irrigation, marketing, equipment management, cultural and environmental management, business management, design, and employability and human relations skills.

II. LABORATORY ACTIVITIES: Laboratory and horticultural land laboratory activities are an integral part of this program and include the use of horticultural equipment, management and maintenance of growing structures, chemical application and landscape installation.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities must be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Demonstrate an understanding of plant physiology and growth.
02. Classify ornamental flowers.
03. Prepare growing media and seedbeds.
04. Propagate ornamental plants.
05. Design, install, and service irrigation systems.
06. Determine drainage system needs and design a drainage system.
07. Select, operate, and maintain tools and equipment.
08. Grow ornamental plants.

IV. INTENDED OUTCOMES: Continued

09. Fertilize ornamental plants.
10. Manage a pest-control program.
11. Prune and shape ornamental plants.
12. Protect plants and equipment from adverse weather.
13. Harvest, process, and ship ornamental plants.
14. Market ornamental plants.
15. Maintain and analyze records.
16. Demonstrate managerial and supervisory skills.
17. Design ornamental horticulture facilities.
18. Demonstrate employability skills.

STUDENT PERFORMANCE STANDARDS
EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture
SECONDARY NUMBER: ____________
PROGRAM TITLE: Ornamental Horticulture Technology
POSTSECONDARY NUMBER: 0102.040400

01.0 DEMONSTRATE AN UNDERSTANDING OF PLANT PHYSIOLOGY AND GROWTH--The student will be able to:

01.01 Describe the process of photosynthesis (C-3 and C-4 pathways).
01.02 Identify and describe the functions of all parts of the plant.
01.03 Describe an asexual reproduction processes.
01.04 Explain the differences between angiosperms and gymnosperms.
01.05 Identify the differences between woody and herbaceous plants.

02.0 CLASSIFY ORNAMENTAL FLOWERS--The student will be able to:

02.01 Identify and group shade and flowering trees.
02.02 Identify and group fruit trees and plants.
02.03 Identify and group annuals, vegetables, and herbs.
02.04 Identify and group woody ornamentals, vines, and ground covers.
02.05 Identify and group tropical foliage plants.
02.06 Identify and group turf and ornamental grasses.

03.0 PREPARE GROWING MEDIA AND SEEDBEDS--The student will be able to:

03.01 Identify medial materials.
03.02 Mix rooting and growing media according to plant requirements.
03.03 Sterilize rooting, potting, and growing media.
03.04 Collect and test a soil sample from field and potting media.
03.05 Adjust pH and nutritional levels of media.
03.06 Prepare planting beds and sites.
03.07 Fill and level benches and pots with media.
03.08 Demonstrate sanitation practices when handling and storing plant media materials.

04.0 PROPAGATE ORNAMENTAL PLANTS--The student will be able to:

04.01 Collect propagation materials at proper time (seeds, cuttings, scions, bulbs, etc.)
04.02 Demonstrate propagation by grafting, budding, layering, separating, dividing, cutting, and tissue culturing.
04.03 Prepare flats and a seedbed and plant seeds.
04.04 Prepare a rooting bed.
04.05 Prepare propagation materials (seeds, cuttings, scions, etc.).
04.06 Apply growth stimulants to propagation materials.
04.07 Control propagation facility environment (moisture, temperature, light).
04.08 Transplant rooted propagation materials including tissue culture transplants.
04.09 Describe advanced propagation techniques (tissue culture, pre-germination, seed irradiation, tree cuttings).
04.10 Demonstrate sanitation and safety practices when propagating.

05.0 DESIGN, INSTALL, AND SERVICE IRRIGATION SYSTEMS--The student will be able to:

05.01 Determine irrigation requirements.
05.02 Assess quality of irrigation water.
05.03 Design and set up an irrigation system for propagation area, greenhouse or enclosed structure, shade house, retail display area, and field-growing area.
05.04 Maintain electric and engine-driven pumps.
05.05 Operate and service various types of irrigation systems.
05.06 Calculate cost efficiency of irrigation system.

06.0 DETERMINE DRAINAGE SYSTEM NEEDS AND DESIGN A DRAINAGE SYSTEM--The student will be able to:

06.01 Determine the natural slope/grade of an area.
06.02 Determine the texture and percolation characteristics of the soil.
06.03 Identify techniques for constructing ditches and culverts.

06.04 Direct the movement of water away from structures and installations.
06.05 Design an underground drainage system.

07.0 SELECT, OPERATE, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

07.01 Determine equipment needs for the company.
07.02 Select and operate equipment for the job.
07.03 Supervise the service and maintenance of power equipment.
07.04 Supervise the repair and maintenance of facilities.
07.05 Instruct and supervise employees in the safe use of tools and equipment.
07.06 Maintain an inventory of parts and supplies.

08.0 GROW ORNAMENTAL PLANTS--The student will be able to:

08.01 Prepare media for containers.
08.02 Prepare field site for transplants.
08.03 Select plant containers.
08.04 Determine plant spacing in the field and on container beds.
08.05 Transplant propagated materials to various containers and to the field.
08.06 Determine and provide light requirements of various plant types.
08.07 Determine water requirements and apply water at proper rates.
08.08 Identify weeds and apply herbicides.
08.09 Determine fertilization requirements.
08.10 Identify insect and insect-like disease problems and apply pesticides.
08.11 Demonstrate safety practices when applying pesticides.

09.0 FERTILIZE ORNAMENTAL PLANTS--The student will be able to:

09.01 Evaluate influences of nutrients on plant growth.
09.02 Collect soil and leaf tissue samples for analysis.
09.03 Interpret and evaluate the results of soil and leaf tissue analysis.
09.04 Apply fertilizers, using appropriate methods (dry, liquid, slow-release, injection, etc.).
09.05 Demonstrate proper handling and storage of fertilizers, observing safety precautions.

10.0 MANAGE A PEST-CONTROL PROGRAM--The student will be able to:

10.01 Develop an integrated pest management program or schedule.
10.02 Train employees in the safe use of pesticides.
10.03 Obtain a restricted-use pesticide license.

11.0 PRUNE AND SHAPE ORNAMENTAL PLANTS--The student will be able to:

11.01 Train employees in pruning techniques.
11.02 Develop a pruning program and time schedule.
11.03 Identify and use tools for pruning.
11.04 Prune plants to achieve desired growth.
11.05 Prune plants with unique cultural requirements (roses, fruit trees, etc.)
11.06 Prune specialty items (topiary, espalier, bonsai, etc.).
11.07 Select and use chemical growth regulators.
11.08 Root-prune ornamental plants and trees.
11.09 Demonstrate sanitation and safety practices when pruning.

12.0 PROTECT PLANTS AND EQUIPMENT FROM ADVERSE WEATHER--The student will be able to:

12.01 Monitor and interpret weather forecasts.
12.02 Supervise procedures for protecting plants and equipment from adverse weather.
12.03 Compare cost and efficiency of various methods of protecting plants and equipment from adverse weather.
12.04 List ornamental plants according to environmental tolerances (light, temperature, moisture, wind, salt, etc.).

13.0 HARVEST, PROCESS, AND SHIP ORNAMENTAL PLANTS--The student will be able to:

13.01 Grade and harvest field-grown plants (ball, burlap, bare-root, "grow-bags").
13.02 Identify mechanical techniques for harvesting field-grown plants (tree spade and mechanical digger).
13.03 Select, grade, and assemble container-grown plants.
13.04 Prepare for shipment, loading, and transporting harvested plant materials.
13.05 Use proper methods for preserving plant viability.
13.06 Comply with regulations regarding the inspection and movement of plant materials.
13.07 Demonstrate safety practices when harvesting, processing, and shipping nursery stock.

14.0 MARKET ORNAMENTAL PLANTS--The student will be able to:

14.01 Identify, inventory, and label marketable plants.
14.02 Identify market segments (commercial, residential, wholesaler, retailer, etc.).
14.03 Identify methods of marketing (advertising, public relations, sales peronnel, trade shows, etc.).
14.04 Develop a marketing program (budget, displays, sales aids, price lists, etc.).
14.05 Develop sales training program (product knowledge, customer relations, sales techniques, resource materials, etc.)
14.06 Develop an annual sales calendar (seasonal sales, special promotion, etc.).

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain fertilizer and pesticide application records.
15.02 Keep equipment maintenance and service records.
15.03 Maintain sales and production records.
15.04 Record labor and personnel information.
15.05 Keep inventory records.
15.06 Analyze cost and effectiveness of management practices.
15.07 Determine plant production costs.
15.08 Determine insurance needs.
15.09 Prepare an annual budget.
15.10 Prepare a five-year projection plan.
15.11 Maintain accounts-receivable and accounts-payable records.
15.12 Describe the use of computer in ornamental horticulture operation.

16.0 DEMONSTRATE MANAGERIAL AND SUPERVISORY SKILLS--The student will be able to:

16.01 Instruct employees in their tasks.
16.02 Prepare daily work plans.
16.03 Enforce safety regulations.
16.04 Evaluate performance of employees.
16.05 Develop an outline for a policy manual.
16.06 Organize and conduct employee training.
16.07 Conduct employee grievance procedures.
16.08 Prepare job descriptions.
16.09 Conduct job interviews.
16.10 Demonstrate effective communication skills.
16.11 Demonstrate computer literacy as related to ornamental horticulture operation.

17.0 DESIGN ORNAMENTAL HORTICULTURE FACILITIES--The student will be able to:

17.01 Design a facility for propagating ornamental plants.
17.02 Design a bedding-plants growing facility.
17.03 Design a container growing facility.
17.04 Design a field growing facility.
17.05 Design a tropical foliage growing facility.
17.06 Design a retail facility.

18.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

18.01 Conduct a job search.
18.02 Secure information about a job.
18.03 Identify documents that may be required when applying for a job.
18.04 Complete a job application form correctly.
18.05 Demonstrate competency in job interview techniques.
18.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other person.
18.07 Identify acceptable work habits.
18.08 Demonstrate knowledge of how to make job changes.
18.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK — **PROGRAM AREA:** Agriculture

FLORIDA DEPARTMENT OF EDUCATION — **EFFECTIVE DATE:** July, 1992

PROGRAM TITLE: Park Management

CODE NUMBER: Secondary ______ Postsecondary ______

Florida CIP 0131.010100

SECONDARY SCHOOL CREDITS ____ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____ 6-9 ____ 9-12 ____ Postsecondary Adult Vocational

X Postsecondary Vocational ____ Other ______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as supervisors, parks and recreation; superintendents, parks; park managers; guides, parks and wildlife refuge; or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to plan and manage recreational facilities and programs for public or private agencies. Subject matter also include record keeping, laws and regulations, safety, protection of facilities and wildlife, maintenance, as well as leadership, communication, employability, human and public relations skills.

II. LABORATORY ACTIVITIES: Shop and park laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, tractors and field equipment and forest fire control tools.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Keep and analyze inventory, personnel, maintenance and financial records.
02. Identify, interpret and apply laws and regulations and policies to the operation.
03. Demonstrate leadership, employability, communication, human and public relations skills.
04. Develop a plan to manage the natural resources, wildlife and land resources of a park.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to: Continued:

05. Manage and supervise the protection of park resources and visitors.
06. Identify and manage park flora and fauna.
07. Manage, construct and maintain facilities and grounds.
08. Interpret and incorporate technical information into park management practices.
09. Manage visitor services.
10. Operate and maintain tools and equipment.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: ______________

PROGRAM TITLE: Park Management POSTSECONDARY NUMBER: 0131.010100

01.0 KEEP AND ANALYZE INVENTORY, PERSONNEL, MAINTENANCE AND FINANCIAL RECORDS--The student will be able:

01.01 Complete weekly receipts.
01.02 Complete invoices.
01.03 Requisition materials supplies and services.
01.04 Keep inventory records.
01.05 Keep and maintain equipment and machinery service and maintenance records.
01.06 Prepare work schedules.
01.07 Interpret contracts.
01.08 Contribute to annual park management update and criteria.
01.09 Prepare a park budget.
01.10 Audit park receipts.
01.11 Analyze park use patterns.
01.12 Maintain personnel records.

02.0 IDENTIFY, INTERPRET AND APPLY LAWS AND REGULATIONS AND POLICIES TO THE OPERATION--The student will be able to:

02.01 Explain employee disciplinary procedures and processes.
02.02 Interpret and explain game and wildlife laws.
02.03 Interpret and explain stream, lake, pond and groundwater laws.
02.04 Patrol park areas.
02.05 Enforce park regulations.
02.06 Report violations to appropriate authority.
02.07 Observe EPA regulations.
02.08 Identify agencies responsible for regulating parks.
02.09 Secure and maintain permits, certificates and licenses.

03.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, HUMAN AND PUBLIC RELATIONS SKILLS--The student will be able to:

03.01 Conduct a job search.
03.02 Secure information about a job.
03.03 Identify documents that may be required when applying for a job.
03.04 Complete a job application form correctly.
03.05 Demonstrate competence in job interview techniques.
03.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
03.07 Identify acceptable work habits.
03.08 Demonstrate knowledge of how to make job changes appropriately.
03.09 Demonstrate acceptable employee health habits.

04.0 DEVELOP A PLAN TO MANAGE THE NATURAL RESOURCES, WILDLIFE AND LAND RESOURCES OF A PARK--The student will be able to:

04.01 Read and interpret legal descriptions.
04.02 Identify and classify soil types.
04.03 Determine the use and capability of land resources.
04.04 Assist in the development of land, wildlife and water resource conservation plans for park areas.
04.05 Read and interpret maps, charts and aerial photographs.

05.0 MANAGE AND SUPERVISE THE PROTECTION OF PARK RESOURCES AND VISITORS--The student will be able to:

05.01 List the major liabilities and responsibilities of management for the protection of park resources and visitors.
05.02 Post and maintain park directions and warnings.
05.03 Post park rules and regulations.
05.04 Administer emergency first aid.
05.05 Recognize need for medical assistance.
05.06 Develop plans to protect visitors from dangerous animals and other hazards.

05.0 MANAGE AND SUPERVISE THE PROTECTION OF PARK RESOURCES AND VISITORS--The student will be able to: Continued:

05.07 Develop plans to protect animals and plants and other resources from visitors.
05.08 Monitor and supervise camping and swimming areas.
05.09 Operate and maintain fire fighting equipment and tools.
05.10 Construct and maintain wildfire protection lanes.
05.11 Supervise and maintain park sanitation.

06.0 IDENTIFY AND MANAGE PARK FLORA AND FAUNA--The student will be able to:

06.01 List plant communities and dominant species within a selected park.
06.02 Identify native plant species of a selected area or park.
06.03 Identify plant species toxic to animals and humans.
06.04 Apply pesticides and herbicides according to established park policy.
06.05 Identify wildlife species in a selected area or park.
06.06 List endangered or exotic species of plant and animal life in a selected area or park.
06.07 Develop a plan to manage wildlife in a park.
06.08 Describe interactions between living and non-living components of an ecological system.
06.09 Develop a plan to reestablish native plant and animal life in a selected area or park.
06.10 Plan and monitor an ecological burn.

07.0 MANAGE, CONSTRUCT AND MAINTAIN FACILITIES AND GROUNDS--The student will be able to:

07.01 Develop a facility and grounds maintenance schedule.
07.02 Monitor and report facility and grounds maintenance needs.
07.03 Determine need for private contractors.
07.04 Estimate cost of services.
07.05 Maintain and repair water and sewer systems.
07.06 Maintain and repair structures and conveniences.
07.07 Maintain grounds and recreation areas.
07.08 Plan and construct facilities.
07.09 Make electrical repairs.
07.10 Form and pour concrete.
07.11 Maintain roads, culverts and drainage ditches.
07.12 Observe safety precautions.

08.0 INTERPRET AND INCORPORATE TECHNICAL INFORMATION INTO PARK MANAGEMENT PRACTICES--The student will be able to:

08.01 Maintain a current file of technical information.
08.02 Update skills and knowledge through workshops and seminars.
08.03 Analyze data relative to the operation.
08.04 Assess new practices, equipment and materials based on research or technical information.
08.05 Interpret technical information relative to occupation.

09.0 MANAGE VISITOR SERVICES--The student will be able to:

09.01 Develop and conduct a visitors program and tour.
09.02 Register visitors.
09.03 Schedule events and programs.
09.04 Schedule facilities use.
09.05 Give instructions and directions.
09.06 Manage the flow of vehicular or pedestrian traffic.
09.07 Manage visitor requests and complaints.
09.08 Manage youth groups and events.
09.09 Take reservations.

10.0 OPERATE AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

10.01 Operate and maintain tractor and equipment.
10.02 Prepare a schedule for equipment preventative maintenance.
10.03 Write a set of equipment standards for use in bid specifications.
10.04 Plan and maintain a shop and tool storage facility.
10.05 Control and secure tool and equipment inventory.
10.06 Store flamable and hazardous materials.
10.07 Monitor equipment for safe efficient operation.
10.08 Supervise and train employees in the safe use of tools and equipment.
10.09 Maintain and use shields, guards and other safety devices on tools and equipment.
10.10 Observe OSHA standards for safety.
10.11 Complete and submit accident or injury reports.

CURRICULUM FRAMEWORK　　PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION　　EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Pest Control Technology

CODE NUMBER: Secondary ________ Postsecondary ________________________

Florida CIP 0102.040800

SECONDARY SCHOOL CREDITS _____　　COLLEGE CREDITS _X_　　POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): _____6-9 _____9-12 _____Postsecondary Adult Vocational

_X_ Postsecondary Vocational　　____ Other ___________________

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as pest controllers and assistants (67008407), inspectors, agricultural commodities (168.287-010), sales representatives, herbicide service (251.357-026), sales agents, pest control service (251.357-018), field inspectors, disease and insect control (408.137-010), supervisors, spray, lawn and tree service (408.131-010), supervisor, insect and disease inspection (408.137-010) or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to supervise and manage the sales and application of agricultural chemicals and pesticides. Subject matter includes business management sales, equipment use management, safety, pest identification, recordkeeping, leadership, employability skills, communications and human and public relations.

II. LABORATORY ACTIVITIES: Land, shop and pest control laboratory activities are an integral part of this program including the safe use of hand and power shop tools, hand pesticide and chemical applicators, tractors and power operated chemical and pesticide applicators and safety equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Manage and supervise the application of pesticides and agricultural chemicals.
02. Supervise and train personnel in the safe and efficient use of pesticides and agricultural chemicals.
03. List and interpret laws and regulations relative to the safe application of pest control materials.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to: Continued

04. Manage the maintenance of equipment used to apply pest control materials.
05. Qualify for appropriate certification to apply pest control materials.
06. Keep accurate records required by law and for business management purposes.
07. Classify and identify pests and the appropriate chemicals used to control them.
08. Apply business practices.
09. Market and merchandise goods and services.
10. Demonstrate leadership, communication, employability, human and public relations skills.

STUDENT PERFORMANCE STANDARDS   EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture   SECONDARY NUMBER: ______________
PROGRAM TITLE: Pest Control Technology   POSTSECONDARY NUMBER: 0102.040800

01.0 MANAGE AND SUPERVISE THE APPLICATION OF PESTICIDES AND AGRICULTURAL CHEMICALS--The student will be able to:

01.01 Recognize pesticide and chemical poisoning symptoms.
01.02 Read and interpret packaging labels and guidelines for safety.
01.03 Read and interpret package labels for application rates and instructions.
01.04 Recommend kinds of pesticides and agricultural chemicals to be used in specific situations.
01.05 Use protective clothing and equipment when handling agricultural chemicals.
01.06 Recognize symptoms of pesticide, chemical and residue damage.
01.07 Calculate coverage of chemical.
01.08 Assess compatibility of selected chemicals.
01.09 Determine rate and volume of chemical to be applied.
01.10 Select time of chemical application.
01.11 Select and match nozzles for equipment type, chemical used and pattern of application.
01.12 Safely store chemicals.
01.13 Mix chemicals and carrying agents.
01.14 Apply granular or dry chemical materials.
01.15 Apply liquid materials.
01.16 Adjust ground speed of chemical application equipment.
01.17 Dispose of used chemical containers.

02.0 SUPERVISE AND TRAIN PERSONNEL IN THE SAFE AND EFFICIENT USE OF PESTICIDES AND AGRICULTURAL CHEMICALS--The student will be able to:

02.01 Develop a labor supply plan.
02.02 Hire and dismiss employees.
02.03 Establish and record pay scale and benefits for workers.
02.04 Instruct employees in the safe and efficient use of chemicals and equipment.
02.05 Observe and evaluate employees.
02.06 Maintain safety standards in the application of agricultural chemicals.
02.07 Observe rights and needs of employees.
02.08 Post appropriate health and safety announcements.
02.09 Give and take verbal and written instructions.
02.10 Maintain a safe working environment.

03.0 LIST AND INTERPRET LAWS AND REGULATIONS RELATIVE TO THE SAFE APPLICATION OF PEST CONTROL MATERIALS--The student will be able to:

03.01 Observe local, state and federal pesticide and agricultural chemical regulations.
03.02 Observe EPA regulations.
03.03 List agencies responsible for the regulation of the pest control and chemical application industry.
03.04 Attend workshops and seminars to upgrade skills and knowledge.
03.05 Maintain a file for technical information, periodicals and other information.
03.06 Determine sources of up-to-date information and services.
03.07 List societies, organizations and associations relative to the occupation or profession.

04.0 MANAGE THE MAINTENANCE OF EQUIPMENT USED TO APPLY PEST CONTROL MATERIALS--The student will be able to:

04.01 Inspect safety equipment for cleanliness effectiveness and proper fit.
04.02 Inspect equipment for leaks, clogs, improper equipment for job and other malfunctions.
04.03 Adjust pressure and spray patterns.
04.04 Adjust equipment height and width.
04.05 Adjust mixing apparatus.

04.0 MANAGE THE MAINTENANCE OF EQUIPMENT USED TO APPLY PEST CONTROL MATERIALS--The student will be able to: Continued

04.06 Repair or replace hoses, nozzles and cut-off valves.
04.07 Prepare equipment for storage.
04.08 Order replacement parts and supplies.
04.09 Supervise and/or perform maintenance and repairs.
04.10 Lubricate equipment.
04.11 Follow operators manual.
04.12 Repair and/or maintain dusters.
04.13 Repair and/or maintain fumigators.
04.14 Supervise and/or maintain vehicle maintenance records.
04.15 Maintain and use shop equipment and tools.
04.16 Clean and flush chemical application equipment.
04.17 Describe compatibility of equipment with chemicals used.

05.0 QUALIFY FOR APPROPRIATE CERTIFICATION TO APPLY PEST CONTROL MATERIALS--The student will be able to:

05.01 Interpret certification and licensing requirements.
05.02 Identify qualification needed for various certificates or licensure.
05.03 Apply for license or certificate.
05.04 Maintain license or certificate.

06.0 KEEP ACCURATE RECORDS REQUIRED BY LAW AND FOR BUSINESS MANAGEMENT PURPOSES--The student will be able to:

06.01 Maintain personnel records.
06.02 Maintain health and accident records.
06.03 Maintain equipment maintenance records.
06.04 Keep and maintain complete pesticide application records.
06.05 Keep records of employee training and licensure.
06.06 File required local, state and federal reports.
06.07 Maintain inventory control of pesticides and chemicals.

07.0 CLASSIFY AND IDENTIFY PESTS AND APPROPRIATE CHEMICALS USED TO CONTROL THEM--The student will be able to:

07.01 Identify fungi and bacteria and their symptoms.
07.02 Recognize symptoms of insects and nematodes.
07.03 Classify feeding habits and life cycles of insects.
07.04 Describe life-cycles of bacteria and fungi.
07.05 Consider the pest, host being attacked and chemical when recommending chemical control measures.
07.06 Assess environmental impact when recommending chemical control measures.
07.07 Identify insect, weed and other pests.

08.0 APPLY BUSINESS PRACTICES--The student will be able to:

08.01 Maintain ledger of accounts.
08.02 Determine cost efficiency of operation.
08.03 Prepare a tax return.
08.04 Prepare a budget.
08.05 Determine credit, cash flow and investment returns.
08.06 Review sources and kinds of insurance required.
08.07 Review bonding needs and procedures.
08.08 List major sources of business credit and loans.

09.0 MARKET AND MERCHANDISE GOODS AND SERVICES--The student will be able to:

09.01 Display goods.
09.02 Manage sales.
09.03 Open and close office daily.
09.04 Update price list for goods and services.
09.05 Prepare advertising.
09.06 Handle customer complaints and questions.
09.07 Take order for goods and services by telephone.
09.08 Inspect and follow-up quality of services performed for customer.
09.09 Advise customer in the selection of goods or services.

10.0 DEMONSTRATE LEADERSHIP, COMMUNICATION, EMPLOYABILITY, HUMAN AND PUBLIC RELATIONS SKILLS--The student will be able to:

10.01 Conduct a job search.
10.02 Secure information about a job.
10.03 Identify documents that may be required when applying for a job.
10.04 Complete a job application form correctly.
10.05 Demonstrate competence in job interview techniques.
10.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
10.07 Identify acceptable work habits.
10.08 Demonstrate knowledge of how to make job changes appropriately.
10.09 Demonstrate acceptable employee health habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Small and Large Animal Services

CODE NUMBER: Secondary 8115100 Postsecondary ANS0010

Florida CIP 0101.050200

SECONDARY SCHOOL CREDITS 4 COLLEGE CREDITS _____ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): ____6-9 ___-12 X Postsecondary Adult Vocational

______ Postsecondary Vocational X Other 10-12,30,31

CERTIFICATION COVERAGE:	10-12,30,31	VOC AGRI @4 AG SUPPLI #7	AGRI @4 AGRICULTUR 1 2
	30,31	VOC AGRI @4 AG SUPPLI @7 G AGRICULTUR 1 2	AGRI @2 @4

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as animal keepers (412.674-010), dog groomers (418.674-010), salespersons, pets and pet supplies (277.357-047), stable attendants (410.674-022), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to provide services in the breeding, care, feeding, training, selection, health care, grooming and showing of animals. Subject matter also includes maintenance of equipment and facilities, as well as leadership, communication and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8106120	Animal Science 1
8106130	Animal Science 2
8115140	Small and Large Animal Services 4

II. LABORATORY ACTIVITIES: Agricultural shop and animal laboratory activities are an integral part of this program including the safe use of animal health care instruments, animal grooming equipment, basic mechanics' hand tools, hand carpentry tools, animal restraining equipment, and tractors and field equipment.

III. SPECIAL NOTE: FFA (secondary) and the National Postsecondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects

III. SPECIAL NOTE: Continued

equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the maximum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 8.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 600 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the animal science industry.
11. Apply approved nutritional and animal health practices.
12. Groom, exhibit and market animals.
13. Maintain equipment and facilities.
14. Operate, maintain, and repair machinery and equipment.
15. Maintain and analyze records.
16. Follow safety precautions.
17. Control parasites and diseases of animals.
18. Perform emergency first aid.
19. Identify, select and breed animals.
20. Plan routine management of animals and facilities.
21. Perform business management activities.
22. Display, handle, and sell merchandise.
23. Demonstrate proficiency in applying basic mathematics, science and communication skills to agriculture problem solving.
24. Demonstrate job skills.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: 8115100

PROGRAM TITLE: Small and Large Animal Services POSTSECONDARY NUMBER: ANS0010

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.

11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.06 Measure and add medication to feed as prescribed.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.
11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.07 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.
12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.
14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.
15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.
15.06 Analyze records to determine efficiency of operation.
15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.
19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.
20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.
20.06 Implement and maintain sanitary conditions for animals including young.
20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

21.0 PERFORM BUSINESS MANAGEMENT ACTIVITIES--The student will be able to:

21.01 Record animal health information.
21.02 Record breed information.
21.04 Maintain ledger of accounts.
21.05 File information and records.

21.06 Fill customer orders.
21.07 Record sales or service information.
21.08 Take customer orders by phone.
21.09 Describe business computer operations.
21.10 Schedule appointments.
21.11 Inventory supplies and equipment.

22.0 DISPLAY, HANDLE, AND SELL MERCHANDISE--The student will be able to:

22.01 Display animals. equipment and merchandise.
22.02 Provide service and information to customer.
22.03 Describe purpose and quality of product or service.
22.04 Load and unload delivery vehicles.
22.05 Store and house received supplies and animals.

23.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

23.01 Solve time, distance, area, and volume problems.
23.02 Solve ratio, proportion, and percentage problems.
23.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
23.04 Identify basic concepts of physics in agricultural applications.
23.05 Identify basic concepts of chemistry in agricultural applications.
23.06 Identify basic biological concepts in agricultural applications.
23.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
23.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
23.09 Demonstrate the scientific method in agricultural problem solving.

24.0 DEMONSTRATE JOB SKILLS--The student will be able to:

24.01 Conduct a job search.
24.02 Secure information about a job.
24.03 Identify documents that may be required when applying for a job.
24.04 Demonstrate competence in job interview techniques.
24.05 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
24.06 Identify acceptable work habits.
24.07 Demonstrate knowledge of how to make job changes appropriately.
24.08 Demonstrate acceptable employee health and hygiene habits.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Small and Large Animal Services PROGRAM NUMBER: 8115100
COURSE TITLE: Agriscience Foundations COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

- 04.01 Describe the importance of using the proper tools and equipment for the job.
- 04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
- 04.03 Demonstrate the ability to use an equipment manual.
- 04.04 Demonstrate the use of selected tools and equipment.
- 04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

- 05.01 Identify major types of pests and weed infestations.
- 05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
- 05.03 Describe symptoms of pesticide poisoning.
- 05.04 Extract pertinent information from a pesticide label.
- 05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
- 05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
- 05.07 Identify the proper disposal of containers and residual pesticides.
- 05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

- 06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
- 06.02 Describe the functions of roots, stems, leaves, and flowers.
- 06.03 Demonstrate sexual and asexual plant propagation.
- 06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
- 06.05 Extract pertinent information from a fertilizer label.
- 06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

- 07.01 Identify basic economic principles applicable to agribusiness.
- 07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
- 07.03 Describe the types of agribusiness by organizational structure.
- 07.04 Select and use computer applications appropriate to agribusiness.
- 07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
- 07.06 Keep and maintain supervised agricultural experience (SAE) records.
- 07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

- 08.01 Describe key factors in marketing agricultural products.
- 08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

- 09.01 Demonstrate acceptable work habits and attitudes.
- 09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
- 09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
- 09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.

09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July, 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Small and Large Animal Services	PROGRAM NUMBER:	8115100
COURSE TITLE:	Animal Science 1	COURSE NUMBER:	8106120

COURSE DESCRIPTION:

The purpose of this course is to provide competencies in the areas of history, animal nutrition, health, grooming, showing, marketing, facilities and equipment maintenance, operation and repair of machinery, safety, parasite and disease control, animal first aid, and breed identification and selection.

10.0 DESCRIBE THE ANIMAL SCIENCE INDUSTRY--The student will be able to:

10.01 Discuss the history of animal domestication.
10.02 Explain the scope and importance of the animal science industry.
10.03 List products and by-products of the animal science industry.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.01 Discuss and compare digestive systems of animals.
11.02 Identify common feedstuffs and supplements.
11.03 Evaluate animal feed and feeding systems.
11.04 Provide clean and fresh water for animals.
11.05 Prepare feed and feed animals.
11.07 Determine amount to feed individual animals.
11.08 Determine nutritional requirements of animals.
11.09 Schedule feeding times for animals.
11.10 Interpret information on feed labels.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.01 Groom selected animals for exhibit.
12.02 Train animals for show and/or exhibit.
12.03 Show and exhibit animals.
12.04 Perform basic animal obedience training.
12.07 Demonstrate knowledge required to break selected animals to halter.
12.06 Weigh animals.
12.07 Prepare animals for transport.
12.08 Complete show application forms and required certificates.
12.09 Identify market outlets.

13.0 MAINTAIN EQUIPMENT AND FACILITIES--The student will be able to:

13.01 Clean and disinfect pens, cages, feeders, waterers, trailers and other equipment.
13.02 Dispose of animal residue and waste.
13.03 Clean and maintain equipment and instruments.
13.04 Repair and maintain pens, cages and other facilities and structures.
13.05 Perform maintenance and minor repair of electrical and plumbing fixtures and equipment.
13.06 Maintain a clean, sanitary and healthy environment for animals.

ANIMAL SCIENCE 1 - Continued

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.01 Use equipment-operator and repair manuals.
14.02 Service and maintain small gasoline engines.

16.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

16.01 Maintain the security of animals.
16.02 Recognize dangerous animal behavior.
16.03 Use protective clothing and safety equipment when handling animals.
16.04 Apply safety precautions when handling drugs, chemicals, tools and equipment.
16.05 Locate and operate fire extinguisher.
16.06 Provide a safe and secure environment for guests and animals.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.01 Evaluate and report conditions of animals.
17.05 Sterilize instruments and supplies.
17.06 Interpret and follow directions on medications and animal health aids.
17.10 Dispose of empty chemical and medical containers as prescribed.
17.11 Dispose of deceased animals as prescribed.
17.12 Store medications and chemicals safely and securely.

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.01 Isolate abnormal animals.
18.02 Cleanse wounds.
18.03 Apply antiseptic.
18.06 Seek additional medical attention for animals when required.
18.07 Clean eyes, ears, and teeth of animals when applicable.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.01 Determine age to breed selected animals.
19.02 List gestation length of selected animals.
19.03 Identify selected breeds of animals.
19.04 Describe estrous cycle.
19.05 Describe breeding techniques.
19.06 Describe breed characteristics of selected animals.
19.07 Select sire and dam for breeding.
19.08 Cull offspring.

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STUDENT PERFORMANCE STANDARDS	EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture	COURSE CREDIT: 1
PROGRAM TITLE: Small and Large Animal Services	PROGRAM NUMBER: 8115100
COURSE TITLE: Animal Science 2	COURSE NUMBER: 8106130

COURSE DESCRIPTION:

The purpose of this course is to provide competency in the areas of animal nutrition and health, grooming, exhibiting and marketing, operation and maintenance of machinery, record keeping, safety, parasite and disease control, first aid, and management.

11.0 APPLY APPROVED NUTRITIONAL AND ANIMAL HEALTH PRACTICES--The student will be able to:

11.06 Measure and add medication to feed as prescribed.
11.11 Formulate feeds.
11.12 Select and administer growth stimulants and implants (under supervision).
11.13 Perform castration, dehorning, docking, debeaking etc. when appropriate.

11.14 Compare, select and use pasture, forage and feed crop production and harvesting systems.
11.15 Fertilize pasture, forage and feed crops.
11.16 Control diseases and pests of pasture, forage and feed crops.

12.0 GROOM, EXHIBIT AND MARKET ANIMALS--The student will be able to:

12.10 Collect and interpret market reports.
12.11 Determine market grades of animals and animal products.
12.12 Prepare shipping and health certificates.

14.0 OPERATE, MAINTAIN, AND REPAIR MACHINERY AND EQUIPMENT--The student will be able to:

14.03 Operate, service, and maintain tractors and equipment.
14.04 Maintain records of equipment maintenance and repair.
14.05 Prepare equipment for storage.
14.06 Demonstrate proper use of shop and lab equipment.
14.07 Perform minor welding repairs using arc and oxy-acetylene equipment.
14.08 Demonstrate safety practices in operating machinery and equipment.

15.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

15.01 Maintain and analyze production, performance and breeding records.
15.02 Prepare a business/agricultural tax return.
15.03 Identify major sources of credit.
15.04 Evaluate leasing and renting agreements.
15.05 Evaluate need for liability and other insurance.
15.06 Analyze records to determine efficiency of operation.
15.07 Maintain machinery, equipment and facilities inventory records.
15.08 Maintain breeding records.
15.09 Maintain personnel and labor records.
15.10 Prepare an annual budget.
15.11 Maintain and analyze basic business records (inventory, depreciation, receipts, expenses).
15.12 Maintain supervised occupational records.

17.0 CONTROL PARASITES AND DISEASES OF ANIMALS--The student will be able to:

17.02 Administer prescribed oral medications (under supervision).
17.03 Administer prescribed injections (under supervision).
17.04 Locate injection points of selected animals (under supervision).
17.07 Dip, spray, or dust animals for external parasites (under supervision).
17.08 Collect urine and feces samples for analysis.
17.09 Collect blood samples for analysis (under supervision).

18.0 PERFORM EMERGENCY FIRST AID--The student will be able to:

18.04 Immobilize fractured limbs.
18.05 Identify and stop external bleeding.

19.0 IDENTIFY, SELECT AND BREED ANIMALS--The student will be able to:

19.09 Identify common breeding problems.
19.10 Determine sex of animals.
19.11 Describe basic animal genetics.
19.12 Care for newborn animals.
19.13 List breed associations.

20.0 PLAN ROUTINE MANAGEMENT OF ANIMALS AND FACILITIES--The student will be able to:

20.01 Schedule feeding and care of animals.
20.02 Order supplies and animal food/feeds.
20.03 Develop training and exercise schedule for animals.
20.04 Plan for routine maintenance of equipment and facilities.
20.05 Assist in the planning of a routine animal health and preventative medication program.

20.06 Implement and maintain sanitary conditions for animals including young.
20.07 Separate non-compatible animals.
20.08 Observe animals on a regular basis for problems or stress.
20.09 Demonstrate knowledge of the causes of animal behavior.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture COURSE CREDIT: 1

PROGRAM TITLE: Small and Large Animal Services PROGRAM NUMBER: 8115100

COURSE TITLE: Small and Large Animal Services 4 COURSE NUMBER: 8115140

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of business management, merchandisisng, applied math, science and communications, and employability skills.

21.0 PERFORM BUSINESS MANAGEMENT ACTIVITIES--The student will be able to:

21.01 Record animal health information.
21.02 Record breed information.
21.04 Maintain ledger of accounts.
21.05 File information and records.
21.06 Fill customer orders.
21.07 Record sales or service information.
21.08 Take customer orders by phone.
21.09 Describe business computer operations.
21.10 Schedule appointments.
21.11 Inventory supplies and equipment.

22.0 DISPLAY, HANDLE, AND SELL MERCHANDISE--The student will be able to:

22.01 Display animals. equipment and merchandise.
22.02 Provide service and information to customer.
22.03 Describe purpose and quality of product or service.
22.04 Load and unload delivery vehicles.
22.05 Store and house received supplies and animals.

23.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

23.01 Solve time, distance, area, and volume problems.
23.02 Solve ratio, proportion, and percentage problems.
23.03 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
23.04 Identify basic concepts of physics in agricultural applications.
23.05 Identify basic concepts of chemistry in agricultural applications.
23.06 Identify basic biological concepts in agricultural applications.
23.07 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
23.08 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.
23.09 Demonstrate the scientific method in agricultural problem solving.

24.0 DEMONSTRATE JOB SKILLS--The student will be able to:

24.01 Conduct a job search.
24.02 Secure information about a job.
24.03 Identify documents that may be required when applying for a job.
24.04 Demonstrate competence in job interview techniques.
24.05 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
24.06 Identify acceptable work habits.
24.07 Demonstrate knowledge of how to make job changes appropriately.
24.08 Demonstrate acceptable employee health and hygiene habits.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Turf Equipment Management

CODE NUMBER: Secondary ________ Postsecondary ____________

Florida CIP 0101.029900

SECONDARY SCHOOL CREDITS ____ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS ____

APPLICABLE LEVEL(S): ____6-9 ____9-12 ____Postsecondary Adult Vocational

X Postsecondary Vocational Certificate ____ Other ________

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as first line supervisors and manager/supervisors - mechanics, installers, and repairers (81002538), turf equipment service managers or to provide supplemental professional training for persons previously or currently employed in this occupation.

The content includes, but is not limited to, instruction that prepares individuals to manage and maintain turf care equipment and to manage a shop facility. Instruction includes: hand tools, gasoline and diesel mechanics, paints and painting, sharpening and grinding, welding, hydraulics, electrical systems, training on specialized turf care equipment, record keeping, inventory control, safety, laws and regulations, public relations, human relations, shop management, professionalism, employability skills, communications skills, and management skills.

II. LABORATORY ACTIVITIES: Shop and field laboratory activities are an integral part of this program and provide instruction in the use of hand tools and special tools, the proper operation and maintenance procedures on turf care equipment, oxy-acetylene and electric arc welding, painting, sharpening and grinding reel and rotary mower blades, engine repair, electrical, hydraulic, mechanical, and structural repair of turf care equipment, and the assembly of new turf care equipment.

III. SPECIAL NOTE: The National Postsecondary Agricultural Student Organization and the Professional Turf Equipment Service Technology Association (T.E.S.T.A.) are the appropriate organizations for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

Graduates from this college credit certificate program will have sufficient equipment and shop management theory and practice to articulate with A.S. degree programs in Golf Course Operations.

The typical length of this program for the average achieving student is a one-year college credit certificate program.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Disassemble, reassemble, adjust, repair, and diagnose the problems related to two and four-cycle engines.
02. Service electrical systems, fuels and lubricating systems, cooling systems, power train/hydraulic drives, and controls on turf equipment.
03. Adjust, sharpen, grind, and rebuild reel and rotary mowing units.
04. Paint and protect turf equipment using appropriate equipment, materials, and techniques.
05. Use shop tools and equipment, and organize a shop following appropriate safety, management, and inventory techniques.
06. Order and stock parts and keep shop records.
07. Perform basic welding tasks using both gas and arc welding techniques.
08. Identify and safely operate turf care equipment.
09. Develop appropriate grooming habits.
10. Demonstrate employability skills.
11. Identify the various professional organizations and publications that pertain to the turf management industry.
12. Design a functional golf course maintenance facility and select appropriate maintenance equipment.
13. Develop a preventive maintenance program for turf care equipment.
14. Develop human relations skills.
15. Perform decision making activities.
16. Identify and demonstrate appropriate management activities.
17. Develop a management and training program for new employees.
18. Develop a plan for the functional use of turf equipment management personnel.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture SECONDARY NUMBER: ____________

PROGRAM TITLE: Turf Equipment Management POSTSECONDARY NUMBER: ________

01.0 DISASSEMBLE, REASSEMBLE, ADJUST, REPAIR, AND DIAGNOSE THE PROBLEMS RELATED TO TWO-CYCLE AND FOUR-CYCLE ENGINES--The student will be able to:

01.01 Evaluate horsepower and torque.
01.02 Disassemble and reassemble a two-cycle and four-cycle engine.
01.03 Identify crankcase and cylinder assembly.
01.04 Identify and be able to assemble valves, piston assembly, crankshaft, cooling system, and air filters.
01.05 Identify and assemble parts of the carburetor assembly.
01.06 Identify and assemble the ignition system, governor, alternator, and starter system.
01.07 Identify types of batteries.
01.08 Follow safety rules and precautions when dealing with engines.

02.0 SERVICE ELECTRICAL SYSTEMS, FUEL AND LUBRICATING SYSTEMS, POWER TRAIN/HYDRAULIC DRIVES, AND CONTROLS ON TURF EQUIPMENT--The student will be able to:

02.01 Identify turf equipment electrical systems.
02.02 Service hydraulic systems on a variety of turf equipment.
02.03 Service turf equipment power train systems.
02.04 Identify and service various lubricating systems and understand types of fuels and lubricants.
02.05 Operate and repair the various mechanical and hydraulic controls on turf equipment.
02.06 Repair the governor, ignition, alternator, and starter system on various pieces of turf equipment.

03.0 ADJUST, SHARPEN, GRIND, AND REBUILD REEL AND ROTARY MOWING UNITS--The student will be able to:

03.01 Repair and sharpen various types of reel mowers.
03.02 Grind reel bedknives with various bedknife grinders.
03.03 Lap reel mower blades.
03.04 Follow safety procedures when using reel and bedknife grinders.
03.05 Adjust reel mowers to produce proper cutting heights.
03.06 Sharpen and balance rotary mower blades.
03.07 Remove and replace rotary mower blades.

04.0 PAINT AND PROTECT TURF EQUIPMENT USING APPROPRIATE EQUIPMENT, MATERIALS, AND TECHNIQUES--The student will be able to:

04.01 List and describe the major kinds of paints and other metal protectants.
04.02 Select the proper surface protectants for different metals common to turf equipment.
04.03 Operate a steam cleaner safely.
04.04 Clean and prepare turf equipment for painting.
04.05 Operate a pressure spray gun safely.
04.06 Use paint thinners, preservatives, and other additives.
04.07 Prepare and paint a given piece of turf equipment.
04.08 Prepare and paint metal and wood surfaces.
04.09 Organize a paint center following proper safety requirements for a turf maintenance facility.

05.0 USE SHOP TOOLS AND EQUIPMENT AND ORGANIZE A SHOP FOLLOWING APPROPRIATE SAFETY, MANAGEMENT AND INVENTORY TECHNIQUES--The student will be able to:

05.01 Follow basic OSHA safety regulations and shop fire prevention techniques.
05.02 Perform basic first aid procedures.
05.03 Establish a file system for shop records.
05.04 Identify and use shop hand tools and equipment that relate to turf equipment maintenance.
05.05 Select the appropriate fasteners, bearings, seals, belts, chains fuels, and lubricants for various turf equipment.

05.06 Establish and maintain appropriate shop space for specific shop tasks.
05.07 Establish an appropriate equipment inventory system.

06.0 ORDER AND STOCK PARTS AND KEEP SHOP RECORDS--The student will be able to:

06.01 Use the various equipment manuals to identify parts and service procedures.
06.02 Order parts properly.
06.03 Establish a system for stocking appropriate turf equipment parts.
06.04 Gather the appropriate forms for establishing a recordkeeping system.

07.0 PERFORM BASIC WELDING TASKS USING BOTH GAS AND ARC WELDING TECHNIQUES--The student will be able to:

07.01 Follow welding symbols, and safety practices.
07.02 Connect and operate oxy-acetylene welding equipment.
07.03 Run beads and weld various types of joints.
07.04 Braze and solder metal.
07.05 Cut metal with and oxy-acetylene torch.
07.06 Select appropriate welding rods.
07.07 Set up an electrical arc welding machine.
07.08 Arc weld various types of joints.

08.0 IDENTIFY AND SAFELY OPERATE TURF CARE EQUIPMENT--The student will be able to:

08.01 Identify the appropriate use for commonly used turf care equipment.
08.02 Identify the operation safety procedures for commonly used turf equipment.
08.03 Operate properly all commonly used turf care equipment.

09.0 DEVELOP APPROPRIATE GROOMING HABITS--The student will be able to:

09.01 Identify appropriate attire and grooming to maintain a functional and professional atmosphere in the equipment maintenance facility.

10.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

10.01 Conduct a job search.
10.02 Secure information about a job.
10.03 Identify documents which may be required when applying for a job interview.
10.04 Complete a job application correctly.
10.05 Demonstrate competence in a job interview.
10.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
10.07 Identify acceptable work habits.
10.08 Demonstrate knowledge or how to make job changes appropriately.
10.09 Demonstrate acceptable employee health habits.

11.0 IDENTIFY THE VARIOUS PROFESSIONAL ORGANIZATIONS AND PUBLICATIONS THAT PERTAIN TO THE TURF MANAGEMENT INDUSTRY--The student will be able to:

11.01 Identify major points in the history of the golf course/turf industry.
11.02 Identify and understand various professional turf publications.
11.03 Identify and understand the basic role of professional turf organizations.
11.04 Identify the basics of the seed production and sod production industries.
11.05 Identify the various classes of golf courses and turf maintenance organizations.

12.0 DESIGN A FUNCTIONAL GOLF COURSE MAINTENANCE FACILITY AND SELECT APPROPRIATE MAINTENANCE EQUIPMENT--The student will be able to:

12.01 Evaluate the organization and management styles utilized by various golf courses.

12.02 Classify, by use, the various equipment used on a typical 18-hole golf course.

12.03 List the equipment needed to properly maintain an 18-hole golf course.
12.04 Design and organize a golf course maintenance complex.
12.05 Develop an equipment budget for an 18-hole golf course.

13.0 DEVELOP PREVENTIVE MAINTENANCE PROGRAMS FOR TURF CARE EQUIPMENT--The student will be able to:

13.01 Use equipment manufacturers' manuals to implement proper service procedures.
13.02 Develop a recordkeeping system to record equipment use.
13.03 Develop a recordkeeping system to record service work performed on equipment.

14.0 DEVELOP HUMAN RELATIONS SKILLS--The student will be able to:

14.01 Demonstrate appropriate work habits.
14.02 Identify traits that promote good human relations and increase job performance.
14.03 Develop an understanding of the role of the golf course superintendent and turf equipment service manager in the overall successful operations of the golf course.

15.0 PERFORM DECISION-MAKING ACTIVITIES--The student will be able to:

15.01 Develop the ability to solve problems in a logical sequence.
15.02 Demonstrate the ability to determine proper work priorities.
15.03 Prepare a day's work schedule for the superintendent.
15.04 Choose appropriate action in situations requiring following a chain of command.
15.05 Choose appropriate action in situations requiring effective time management.
15.06 Choose appropriate action in situations requiring application of business ethics.
15.07 Identify ways to assign work to others.

16.0 IDENTIFY AND DEMONSTRATE MANAGEMENT ACTIVITIES--The student will be able to:

16.01 Define management.
16.02 Identify different management styles.
16.03 Identify the major functions of management.
16.04 Demonstrate a knowledge of the relationship between authority and responsibility to task accomplishment.
16.05 Identify problems and make an appropriate decision.
16.06 Develop an OJT training program for new employees.

17.0 DEVELOP A MANAGEMENT AND TRAINING PROGRAM FOR NEW EMPLOYEES--The student will be able to:

17.01 Train new employees in proper shop management.
17.02 Teach new employees how to properly use equipment manuals.
17.03 Train equipment operators on proper and safe equipment operation.
17.04 Train equipment operators how to properly adjust mowing height.
17.05 Develop policies and procedures to be followed by employees caring for turf equipment.

18.0 DEVELOP A PLAN FOR THE FUNCTIONAL USE OF TURF EQUIPMENT MANAGEMENT PERSONNEL--The student will be able to:

18.01 Determine the number of full-time and part-time staff needed.
18.02 Develop a work schedule for turf equipment management personnel.
18.03 Assign daily tasks to turf equipment management personnel.
18.04 Schedule work for smooth operation during times of personnel changes: sick leave, emergency leave, vacations, etc.
18.05 Provide the golf course superintendent with information on the use, maintenance, durability, and general characteristics of turf maintenance.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Turfgrass Operations

CODE NUMBER: Secondary 8121400 Postsecondary ORV0510

Florida CIP 0101.060700

SECONDARY SCHOOL CREDITS 6 COLLEGE CREDITS ______ POSTSECONDARY ADULT VOCATIONAL CREDITS X

APPLICABLE LEVEL(S): _____6-9 _____9-12 X Postsecondary Adult Vocational

______ Postsecondary Vocational X Other 10-12,30,31

	10-12,30,31	VOC AGRI @4 HORTICULT #7	AGRI @4 AGRICULTUR 1 2
CERTIFICATION COVERAGE:	30,31	VOC AGRI @4 HORTICULT @7 G	AGRI @2 @4 AGRICULTUR 1 2

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as greenskeepers I (406.137-010), greenskeepers II (406.683-010), superintendents, greens (406.137-014), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to establish, manage and maintain grassed areas for ornamental and recreational purposes. Subject matter also includes fertilization, pest control, installation of turf, flowers, shrubs and trees, equipment repair and maintenance, record keeping, as well as leadership, employability, communication and human relations skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106810	Agriscience Foundations
8121510	Introductory Horticulture
8121520	Horticultural Science
8121440	Turfgrass Operations 4
8121450	Turfgrass Operations 5
8121460	Turfgrass Operations 6

II. LABORATORY ACTIVITIES: Agricultural shop and turf laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxy-acetylene torches, tractors, and field equipment, chemical applicators and power sprayers.

III. SPECIAL NOTE: FFA (secondary) and the National Postsecondary Agricultural Student Organization (postsecondary) are the appropriate vocational student organizations for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, (4) cooperative experience.

Because of the production and marketing cycle of the turfgrass industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

III: SPECIAL NOTE: Continued

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

In accordance with Section 233.0695 F.S., the minimum basic skills grade level required for this postsecondary adult vocational program is: Mathematics 7.0, Language 8.0, Reading 8.0. This grade level number corresponds to a grade equivalent score obtained on a state designated basic skills examination.

The typical length of this program for the average achieving student is 900 hours.

The particular outcomes and student performance standards which the handicapped student must master to earn credit must be specified in the student's individual education plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 230.643 F.S.

The asterisk (*) identifies student performance standards that are additions to the core and are unique to this program.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Describe the socioeconomic role of agriculture.
02. Apply important scientific and technological principles to agribusiness and natural resources.
03. Practice agricultural safety.
04. Demonstrate the use of tools and equipment and describe the principles of agricultural mechanics.
05. Describe the principles of pest management for insects, diseases, and weeds.
06. Describe the principles of plant growth and reproduction.
07. Apply management skills and economic principles to agribusiness and natural resources.
08. Explain the basic functions of the marketing process in agriculture.
09. Demonstrate human-relations, communications, and leadership skills.
10. Describe the horticulture industry.
11. Identify and classify plants.
12. Propagate plants.
13. Identify growing media and apply fertilizers.
14. Irrigate plants and turf.
15. Control pests.
16. Control plant growth.
17. Harvest, transport, and install plant materials.
18. Operate, repair, and maintain tools and equipment.
19. Demonstrate leadership, employability, communications, and human-relations skills.
20. Maintain greens and tees.
21. Maintain fairways, roughs and traps.
22. Fertilize turf.
23. Control insects, diseases and other pathogens of turf.
24. Plant and maintain grass, trees, flowers and shrubs.
25. Maintain and analyze records.
26. Demonstrate proficiency in applying basic mathematics, science and communications skills to agricultural problem solving.

STUDENT PERFORMANCE STANDARDS　　EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture　　SECONDARY NUMBER: 8121400

PROGRAM TITLE: Turfgrass Operations　　POSTSECONDARY NUMBER: ORV0510

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

01.01 Prepare an overview of the history of agriculture.
01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

02.01 Discuss the importance of scientific classification in agriculture.
02.02 Use the scientific methods to solve problems in agriculture.
02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
02.04 Analyze how recent technology is impacting agriscience.
02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

03.01 List the most common causes of agricultural accidents.
03.02 Discuss the importance of following proper safety precautions.
03.03 Demonstrate safety procedures in the classroom and laboratory.
03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.01 Describe the importance of using the proper tools and equipment for the job.
04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
04.03 Demonstrate the ability to use an equipment manual.
04.04 Demonstrate the use of selected tools and equipment.
04.05 Service, maintain, and store tools, equipment, and supplies.
* 04.06 Maintain oil level in motors of power-driven turfgrass equipment.
* 04.07 Check and maintain tire pressure on turfgrass equipment.
* 04.08 Service and maintain battery and electrical system.
* 04.09 Perform minor tune-up on engines.

* 04.10 Maintain fuel levels using proper fuel or fuel mixtures.
* 04.11 Operate manual transmissions.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

05.01 Identify major types of pests and weed infestations.
05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
05.03 Describe symptoms of pesticide poisoning.
05.04 Extract pertinent information from a pesticide label.
05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
05.07 Identify the proper disposal of containers and residual pesticides.
05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
06.02 Describe the functions of roots, stems, leaves, and flowers.
06.03 Demonstrate sexual and asexual plant propagation.
06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
06.05 Extract pertinent information from a fertilizer label.
06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

07.01 Identify basic economic principles applicable to agribusiness.
07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
07.03 Describe the types of agribusiness by organizational structure.
07.04 Select and use computer applications appropriate to agribusiness.
07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
07.06 Keep and maintain supervised agricultural experience (SAE) records.
07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

08.01 Describe key factors in marketing agricultural products.
08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

09.01 Demonstrate acceptable work habits and attitudes.
09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.
09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.
10.04 Describe regulations that affect the horticulture industry.
10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Levels I and II.
11.02 Classify plants botanical and list environmental preferences of plants (e.g., shade, sun, wind, moisture, salt). Levels I and II

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).
12.06 Transplant rooted propagation materials.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.03 Collect soil samples for laboratory analysis and interpret the results.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.08 Develop a fertilization schedule.
13.09 Determine rate of fertilizer application.
13.10 Apply fertilizer and soil amendments.
13.11 Apply special fertilization methods appropriate to a region or plant group.
13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.02 Identify sources and quality of water for irrigation.
14.03 Identify irrigation components and types of systems.
14.04 Install irrigation-system components.
14.05 Irrigate plants at recommended rates.
14.06 Identify procedures for measuring water-application rates.
14.07 Repair irrigation systems.
14.08 Identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.
15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).

15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.02 Identify and select chemical growth regulators.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.
17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment pre-operational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.
18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public-speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.
* 19.09 Conduct a job search.
* 19.10 Secure information about a job.

20.0 MAINTAIN GREENS AND TEES--The student will be able to:

20.01 Mow greens.
20.02 Mow collars.
20.03 Mow aprons.
20.04 Relocate cups.
20.05 Replace and relocate markers.
20.06 Irrigate greens.
20.07 Verticut turf.
20.08 Aerate turf.
20.09 Repair ball marks on green.

21.0 MAINTAIN FAIRWAYS, ROUGHS AND TRAPS--The student will be able to:

21.01 Mow roughs.
21.02 Irrigate fairways.
21.03 Repair divots.
21.04 Add sand to traps.
21.05 Rake and trim sand traps.
21.06 Mow fairways.
21.07 Edge sand traps.
21.08 Operate blower, sweeper, verticutter and aerifier.

22.0 FERTILIZE TURF--The student will be able to:

22.01 Apply top dressing.
22.02 Apply fertilizer to greens.
22.03 Apply fertilizer to fairways.
22.04 Apply fertilizer to landscaped areas.

23.0 CONTROL INSECTS, DISEASES AND OTHER PATHOGENS OF TURF--The student will be able to:

23.01 Identify common diseases of turf.
23.02 Describe methods of controlling turf diseases.
23.03 Report infestations of insects in turf.
23.04 Report infestations of diseases in turf.
23.05 Identify and report infestations of weeds in turf.

24.0 PLANT AND MAINTAIN GRASS, TREES, FLOWERS AND SHRUBS--The student will be able to:

24.01 Identify varieties of ornamental plants, trees and turf.
24.02 Prune and trim ornamental plants.
24.03 Plant ornamental trees and plants.
24.04 Maintain ornamental trees and plants.
24.05 Level seedbed.
24.06 Plant grass seed.
24.07 Establish sod by plugging.
24.08 Establish sod by sodding.
24.09 Cut sod.

25.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

25.01 Maintain personnel records.
25.02 Record agencies responsible for rules and services to the industry.
25.03 Understand the right-to-know law.
25.04 Prepare opening and closing inventories.
25.05 Maintain supervised occupational experience (SOE) records.

26.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

26.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.
26.02 Identify basic concepts of physics in agricultural applications.
26.03 Identify basic concepts of chemistry in agricultural applications.
26.04 Identify basic biological concepts in agricultural applications.
26.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.
26.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Turfgrass Operations PROGRAM NUMBER: 8121400
COURSE TITLE: Agriscience Foundations COURSE NUMBER: 8106810

COURSE DESCRIPTION:

This course was developed as a core and is designed to develop competencies in the areas of agricultural history; global importance of agriculture; career opportunities; applied scientific and technological concepts; ecosystems; agricultural safety; principles of pest management; principles of plant growth; management principles; agricultural marketing; and human-relations skills.

01.0 DESCRIBE THE SOCIOECONOMIC ROLE OF AGRICULTURE--The student will be able to:

- 01.01 Prepare an overview of the history of agriculture.
- 01.02 Discuss agricultural products and services important to the local, state, national, and global economy.
- 01.03 Investigate career opportunities in agriscience and identify which school activities would help one prepare for those careers.
- 01.04 Discuss agriculture's role in the interaction of population, food, and energy.

02.0 APPLY IMPORTANT SCIENTIFIC AND TECHNOLOGICAL PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

- 02.01 Discuss the importance of scientific classification in agriculture.
- 02.02 Use the scientific methods to solve problems in agriculture.
- 02.03 Demonstrate the use of genetics, including probability applications, through an agricultural project/activity.
- 02.04 Analyze how recent technology is impacting agriscience.
- 02.05 Identify the components of an agricultural ecosystem and recognize the role of each.
- 02.06 Construct and analyze a diagram of a biological food chain common to Florida agriculture and natural resources.
- 02.07 Describe how water, carbon, nitrogen, oxygen, sulfur, and phosphorus are recycled naturally.
- 02.08 Evaluate soil profiles, land-capability classes, and soil conservation practices.
- 02.09 List the components of Florida's fresh water systems (lakes, ground water, aquifer, sink holes, rivers, and swamps) and explain the importance of managing these resources.
- 02.10 Explain how increasing or decreasing the use of one natural resource may affect another resource.
- 02.11 Describe the causes and effects of air, water, and land pollution and identify ways to prevent pollution.
- 02.12 Explain the flow of energy from the sun, through agricultural systems (i.e., the common food pyramid), and back into the abiotic environment.
- 02.13 Recognize the environmental requirements necessary for a productive natural or man-made aquaculture system.
- 02.14 Apply principles of sound waste management to environmental problems common to agricultural systems.

03.0 PRACTICE AGRICULTURAL SAFETY--The student will be able to:

- 03.01 List the most common causes of agricultural accidents.
- 03.02 Discuss the importance of following proper safety precautions.
- 03.03 Demonstrate safety procedures in the classroom and laboratory.
- 03.04 Describe the importance of following the directions on chemical containers and in equipment operator manuals.
- 03.05 Recognize the proper procedures of basic first aid and cardiopulmonary resuscitation (CPR).
- 03.06 Demonstrate safe and effective use of laboratory equipment, instruments, and materials.

AGRISCIENCE FOUNDATIONS - Continued

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

- 04.01 Describe the importance of using the proper tools and equipment for the job.
- 04.02 Describe the principles of selected mechanical applications (e.g., levers, pulleys, hydraulics, internal combustion).
- 04.03 Demonstrate the ability to use an equipment manual.
- 04.04 Demonstrate the use of selected tools and equipment.
- 04.05 Service, maintain, and store tools, equipment, and supplies.

05.0 DESCRIBE THE PRINCIPLES OF PEST MANAGEMENT FOR INSECTS, DISEASES, AND WEEDS--The student will be able to:

- 05.01 Identify major types of pests and weed infestations.
- 05.02 Identify and select an appropriate control for each major type of pest, including the use of Integrated Pest Management.
- 05.03 Describe symptoms of pesticide poisoning.
- 05.04 Extract pertinent information from a pesticide label.
- 05.05 Select, mix, and apply a nonrestricted chemical, according to the label and local, state, federal, and EPA regulations.
- 05.06 Clean and store pesticide application equipment, safety clothing, and safety equipment.
- 05.07 Identify the proper disposal of containers and residual pesticides.
- 05.08 Calibrate spray equipment; solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.

06.0 DESCRIBE THE PRINCIPLES OF PLANT GROWTH AND REPRODUCTION--The student will be able to:

- 06.01 Identify the raw materials and products of photosynthesis and respiration, the plant structures involved, and the environmental conditions necessary for each reaction.
- 06.02 Describe the functions of roots, stems, leaves, and flowers.
- 06.03 Demonstrate sexual and asexual plant propagation.
- 06.04 Demonstrate the effects of nitrogen, phosphorus, and potassium (N.P.K.) on plant growth.
- 06.05 Extract pertinent information from a fertilizer label.
- 06.06 Describe the short- and long-range impact of fertilizer on people and the environment.

07.0 APPLY MANAGEMENT SKILLS AND ECONOMIC PRINCIPLES TO AGRIBUSINESS AND NATURAL RESOURCES--The student will be able to:

- 07.01 Identify basic economic principles applicable to agribusiness.
- 07.02 Explain the importance of local, state, and federal regulations and required documentation affecting agriculture.
- 07.03 Describe the types of agribusiness by organizational structure.
- 07.04 Select and use computer applications appropriate to agribusiness.
- 07.05 Form one or more inferences or hypotheses from records summarized in tables, graphs, or pictures.
- 07.06 Keep and maintain supervised agricultural experience (SAE) records.
- 07.07 Interpret legal descriptions of land in Florida.

08.0 EXPLAIN THE BASIC FUNCTIONS OF THE MARKETING PROCESS IN AGRICULTURE--The student will be able to:

- 08.01 Describe key factors in marketing agricultural products.
- 08.02 Select agricultural products according to grades and standards.

09.0 DEMONSTRATE HUMAN-RELATIONS, COMMUNICATIONS, AND LEADERSHIP SKILLS--The student will be able to:

- 09.01 Demonstrate acceptable work habits and attitudes.
- 09.02 Follow oral and written directions with understanding; form questions that clarify directions, as needed.

09.03 Communicate effectively in oral, written, visual, and nonverbal modes; demonstrate effective telephone skills.
09.04 Recognize and demonstrate reflective listening skills and assertive communications skills in the workplace.
09.05 Conduct small, informal, and group meetings.
09.06 Demonstrate a knowledge of the opportunities for leadership development available through an appropriate student organization.

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STUDENT PERFORMANCE STANDARDS   EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture   COURSE CREDIT: 1

PROGRAM TITLE: Turfgrass Operations   PROGRAM NUMBER: 8121400

COURSE TITLE: Introductory Horticulture   COURSE NUMBER: 8121510

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of career opportunities; global importance of agriculture; plant classification; propagation; growing media; nutritional needs; fertilization; irrigation; pest identification; pest control, pruning; plant installation; transplanting; safe hand-tool use; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level I.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level I.

12.0 PROPAGATE PLANTS--The student will be able to:

12.01 Identify propagating and growing facilities and structures.
12.02 Prepare propagation media.
12.03 Select and collect propagation materials.
12.04 Demonstrate propagation by sexual and asexual methods.
12.05 Demonstrate environmental controls for propagation materials (e.g., moisture, temperature, light).

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.01 Identify soil and media materials.
13.02 Identify nutritional needs of plants.
13.04 Identify symptoms of nutritional deficiencies and toxicities of plants.
13.05 Identify types and kinds of fertilizers.
13.06 Identify methods of distributing fertilizers.
13.07 Interpret analysis of fertilizer from information on tag or container.
13.10 Apply fertilizer and soil amendments.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.01 Identify water needs of plants.
14.05 Irrigate plants at recommended rates.

INTRODUCTORY HORTICULTURE - Continued

15.0 CONTROL PESTS--The student will be able to:

15.01 Identify common pests of plants (e.g., diseases, weeds, nematodes).
15.02 Describe life cycles of common pests of plants.
15.03 Classify insects according to feeding habits.
15.04 Describe biological, chemical, and cultural methods of controlling plant pests.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.01 Identify methods of pruning plants to achieve desired growth and to maintain health.
16.03 Identify appropriate time to prune plants.
16.04 Identify and select pruning tools for the task.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.01 Determine requirements for preserving plant viability.
17.02 Install containerized plant materials.
17.03 Select and prepare plants for transportation and transplanting.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.01 Perform equipment preoperational check.
18.02 Identify, maintain, and safely operate hand tools and power tools.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN RELATIONS SKILLS--The student will be able to:

19.01 Conduct group meetings, using parliamentary procedure and public speaking skills.
19.02 Identify acceptable work habits and personal characteristics.
19.03 Identify acceptable employee hygiene habits.
19.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.

STUDENT PERFORMANCE STANDARDS		EFFECTIVE DATE:	July 1992
PROGRAM AREA:	Agriculture	COURSE CREDIT:	1
PROGRAM TITLE:	Turfgrass Operations	PROGRAM NUMBER:	8121400
COURSE TITLE:	Horticulture Science	COURSE NUMBER:	8121520

COURSE DESCRIPTION:

This course is designed to develop competencies in the areas of industry regulations; plant classification; plant transportation; soil sampling and analysis; fertilizer calculations; recording keeping; irrigation components, water quality; drainage; integrated pest management; pesticide safety and regulations; equipment calibration; chemical growth regulators; xeriscaping; integrated landscape management; safe use of power equipment; record keeping; and employability skills.

10.0 DESCRIBE THE HORTICULTURE INDUSTRY--The student will be able to:

10.04 Describe regulations that affect the horticulture industry.
10.05 Identify professional organizations and trade journals in the horticulture industry.

11.0 IDENTIFY AND CLASSIFY PLANTS--The student will be able to:

11.01 Identify plants by scientific and common names. Level II.
11.02 Classify plants botanically and list environmental preference of plants (e.g., shade, sun, wind, moisture, salt). Level II.

12.0 PROPAGATE PLANTS--The student will be able to:

12.06 Transplant rooted propagation materials.

13.0 IDENTIFY GROWING MEDIA AND APPLY FERTILIZERS--The student will be able to:

13.03 Collect soil samples for laboratory analysis and interpret the results.
13.08 Develop a fertilization schedule.
13.09 Determine rate of fertilizer application.
13.11 Apply special fertilization methods appropriate to a region or plant group.
13.12 Maintain fertilization records.

14.0 IRRIGATE PLANTS AND TURF--The student will be able to:

14.02 Identify sources and quality of water for irrigation.
14.03 Identify irrigation components and types of systems.
14.04 Install irrigation system components.
14.06 Identify procedures for measuring water application rates.
14.07 Repair irrigation systems.
14.08 Identify drainage components for different types of drainage systems.

15.0 CONTROL PESTS--The student will be able to:

15.05 Select and identify pesticides according to controlling action (e.g., stomach, contact, systemic).
15.06 Interpret information on a pesticide or agricultural chemical label.
15.07 Describe symptoms of pesticide poisoning and identify required first aid.
15.08 Comply with local, state, federal, and Environmental Protection Agency (EPA) regulations regarding pesticides.
15.09 Store, select, mix, and apply pesticides safely according to the product label.
15.10 Clean, adjust, and calibrate spray equipment.
15.11 Maintain pesticide records.

16.0 CONTROL PLANT GROWTH--The student will be able to:

16.02 Identify and select chemical growth regulators.
16.05 Prune plants safely and sterilize tools.
16.06 Root-prune appropriate plants.

17.0 HARVEST, TRANSPORT, AND INSTALL PLANT MATERIALS--The student will be able to:

17.04 Describe principles of xeriscaping.
17.05 Describe principles of integrated landscape management.

18.0 OPERATE, REPAIR, AND MAINTAIN TOOLS AND EQUIPMENT--The student will be able to:

18.03 Identify, maintain, and safely operate small gasoline engines.
18.04 Identify, maintain, and safely operate power equipment.
18.05 Maintain equipment operation and service records.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.05 Demonstrate knowledge of how to make job changes.
19.06 Identify documents that may be required when applying for a job.
19.07 Complete pertinent forms for employment (e.g., resume, job application, W-4).
19.08 Demonstrate competence in job-interview techniques.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Turfgrass Operations PROGRAM NUMBER: 8121400
COURSE TITLE: Turfgrass Operations 4 COURSE NUMBER: 8121440

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of insect, disease and other pathogen control, the planting and maintenance of grass, trees, flowers and shrubs, analyzing and maintaining records and agricultural problem solving.

23.0 CONTROL INSECTS, DISEASES AND OTHER PATHOGENS OF TURF--The student will be able to:

23.01 Identify common diseases of turf.
23.02 Describe methods of controlling turf diseases.
23.03 Report infestations of insects in turf.
23.04 Report infestations of diseases in turf.
23.05 Identify and report infestations of weeds in turf.

24.0 PLANT AND MAINTAIN GRASS, TREES, FLOWERS AND SHRUBS--The student will be able to:

24.01 Identify varieties of ornamental plants, trees and turf.
24.02 Prune and trim ornamental plants.
24.03 Plant ornamental trees and plants.
24.04 Maintain ornamental trees and plants.
24.05 Level seedbed.
24.06 Plant grass seed.
24.07 Establish sod by plugging.
24.08 Establish sod by sodding.
24.09 Cut sod.

25.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

25.02 Record agencies responsible for rules and services to the industry.
25.03 Understand the right-to-know law.
25.04 Prepare opening and closing inventories.
25.05 Maintain supervised occupational experience (SOE) records.

26.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

26.01 Identify and interpret basic quantitative information contained in agricultural charts, graphs, and tables.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992
PROGRAM AREA: Agriculture COURSE CREDIT: 1
PROGRAM TITLE: Turfgrass Operations PROGRAM NUMBER: 8121400
COURSE TITLE: Turfgrass Operations 5 COURSE NUMBER: 8121450

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of insect, disease and other pathogen control, the planting and maintenance of grass, trees, flowers and shrubs, analyzing and maintaining records and agricultural problem solving.

04.0 DEMONSTRATE THE USE OF TOOLS AND EQUIPMENT AND DESCRIBE THE PRINCIPLES OF AGRICULTURAL MECHANICS--The student will be able to:

04.06 Maintain oil level in motors of power-driven turfgrass equipment.
04.07 Check and maintain tire pressure on turfgrass equipment.

04.08 Service and maintain battery and electrical system.
04.09 Perform minor tune-up on engines.
04.10 Maintain fuel levels using proper fuel or fuel mixtures.
04.11 Operate manual transmissions.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.10 Secure information about a job.

22.0 FERTILIZE TURF--The student will be able to:

22.01 Apply top dressing.
22.02 Apply fertilizer to greens.
22.03 Apply fertilizer to fairways.
22.04 Apply fertilizer to landscaped areas.

25.0 MAINTAIN AND ANALYZE RECORDS--The student will be able to:

25.01 Maintain personnel records.

26.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

26.02 Identify basic concepts of physics in agricultural applications.
26.03 Identify basic concepts of chemistry in agricultural applications.
26.04 Identify basic biological concepts in agricultural applications.

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STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July 1992

PROGRAM AREA: Agriculture COURSE CREDIT: 1

PROGRAM TITLE: Turfgrass Operations PROGRAM NUMBER: 8121400

COURSE TITLE: Turfgrass Operations 6 COURSE NUMBER: 8121460

COURSE DESCRIPTION:

This course is designed to develop competency in the areas of employability skills, maintenance of greens, tees, fairways, roughs and traps, and agricultural problem solving.

19.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATIONS AND HUMAN-RELATIONS SKILLS--The student will be able to:

19.09 Conduct a job search.

20.0 MAINTAIN GREENS AND TEES--The student will be able to:

20.01 Mow greens.
20.02 Mow collars.
20.03 Mow aprons.
20.04 Relocate cups.
20.05 Replace and relocate markers.
20.06 Irrigate greens.
20.07 Verticut turf.
20.08 Aerate turf.
20.09 Repair ball marks on green.

21.0 MAINTAIN FAIRWAYS, ROUGHS AND TRAPS--The student will be able to:

21.01 Mow roughs.
21.02 Irrigate fairways.
21.03 Repair divots.
21.04 Add sand to traps.
21.05 Rake and trim sand traps.
21.06 Mow fairways.
21.07 Edge sand traps.
21.08 Operate blower, sweeper, verticutter and aerifier.

26.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

26.05 Prepare written documents using standard rules of English including punctuation, spelling, sentence structure and references.

26.06 Prepare and give oral presentations using standard rules of English including punctuation and sentence structure.

CURRICULUM FRAMEWORK PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1992

PROGRAM TITLE: Zoo Animal Technology

CODE NUMBER: Secondary ______ Postsecondary ______

Florida CIP 0117.050100

SECONDARY SCHOOL CREDITS ______ COLLEGE CREDITS X POSTSECONDARY ADULT VOCATIONAL CREDITS ______

APPLICABLE LEVEL(S): ____7-9 ____9-12 ____Postsecondary Adult Vocational

X Postsecondary Vocational ____ Other______

CERTIFICATION COVERAGE:

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as animal caretakers (79017501) veterinary laboratory technicians, (073.361-010), biological aides (049.384-010), animal breeders (410.161-010), game farm supervisors, (412.131-010), animal keepers, (412.137-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals to supervise and coordinate the activities of workers engaged in the care and exhibition of birds and animals. Subject matter also includes safety, diseases and parasites, feeding and nutrition, maintenance and repair, animal behavior, as well as leadership, communications, employability, human and public relations skills.

II. LABORATORY ACTIVITIES: Zoo and field laboratory activities are an integral part of this program including the safe use of mechanics' hand tools, field hand tools, carpentry hand and portable power tools, animal medical instruments and equipment, and animal restraint equipment.

III. SPECIAL NOTE: National Postsecondary Agricultural Student Organization is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills.

Planned and supervised occupational activities may be provided through directed laboratory experience, practicum or cooperative experience. Whenever the cooperative method of instruction is offered, the following is required for each student: a training plan, signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; a work station which reflects equipment, skills and tasks which are relevant to the occupation the student has chosen as a career goal. The student must receive compensation for work performed.

The typical length of this program for the average achieving student is an associate degree.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Prevent, treat and control diseases and parasites of animals.
02. Capture and restrain animals.
03. Manage animal housing and sanitation.
04. Manage animal nutrition and feeding.
05. Operate and maintain instruments and equipment.
06. Provide first aid for animals.
07. Collect laboratory specimens.
08. Analyze and keep records.
09. Manage animal, visitor and worker safety.

IV. INTENDED OUTCOMES: Continued

10. Identify animal species.
11. Interpret and observe laws, rules and regulations relative to operation.
12. Dispense medicine and supplies.
13. Manage, maintain and repair facilities.
14. Demonstrate leadership, employability, communication, human and public relations skills.
15. Observe and interpret animal behavior.

STUDENT PERFORMANCE STANDARDS — EFFECTIVE DATE: July, 1992

PROGRAM AREA: Agriculture — SECONDARY NUMBER: ______________

PROGRAM TITLE: Zoo Animal Technology — POSTSECONDARY NUMBER: 0117.050100

01.0 PREVENT, TREAT AND CONTROL DISEASES AND PARASITES OF ANIMALS--The student will be able to:

- 01.01 Observe animals daily for symptoms of disease and parasites.
- 01.02 Recognize signs of disease requiring the quarantine or isolation of animals.
- 01.03 Vaccinate animals.
- 01.04 Provide special nutritional care for animals as required.
- 01.05 Maintain a quarantine program for new animal populations.
- 01.06 Manage a pest control program.
- 01.07 Identify and treat trauma, nutritional disorders, infections, poisoning and genetic diseases.
- 01.08 Properly handle mortality cases for disposal or necropsy.

02.0 CAPTURE AND RESTRAIN ANIMALS--The student will be able to:

- 02.01 Identify and use techniques and equipment for the capture and restraint of animals.
- 02.02 Identify circumstances justifying the capture and restraint of animals.
- 02.03 Transport animals safely.

03.0 MANAGE ANIMAL HOUSING AND SANITATION--The student will be able to:

- 03.01 Dispose of animal waste.
- 03.02 Identify specific sanitation procedures applicable to managing the collection.
- 03.03 Select and use appropriate cleaning aids and disinfectants.
- 03.04 Develop a sanitation schedule.
- 03.05 Assign animals to appropriate housing according to species requirements.
- 03.06 Maintain environmental conditions required by species.

04.0 MANAGE ANIMAL NUTRITION AND FEEDING--The student will be able to:

- 04.01 Identify nutritional requirements of various animal species in the wild.
- 04.02 Provide appropriate diets to maintain various species in captivity.
- 04.03 Properly store and maintain animal food supplies.
- 04.04 Prepare and dispense food.
- 04.05 Manage condition under which animals are fed.

05.0 OPERATE AND MAINTAIN INSTRUMENTS AND EQUIPMENT--The student will be able to:

- 05.01 Operate and maintain scales and balances.
- 05.02 Identify, operate and maintain clinical instruments.
- 05.03 Operate and maintain sterilization equipment.
- 05.04 Use and maintain capture and restraint equipment.
- 05.05 Operate communications equipment.
- 05.06 Identify and safely use hand and power tools.

06.0 PROVIDE FIRST AID FOR ANIMALS--The student will be able to:

- 06.01 Identify injuries requiring first aid and provide emergency treatment.
- 06.02 Prepare and maintain first aid equipment and supplies.
- 06.03 Identify injuries requiring services of a veterinarian.

07.0 COLLECT LABORATORY SPECIMENS--The student will be able to:

- 07.01 Collect blood specimens.
- 07.02 Collect urine specimens.
- 07.03 Collect fecal specimens.
- 07.04 Collect tissue samples.
- 07.05 Collect environmental samples.
- 07.06 Properly package and handle specimens for shipment or analysis.

08.0 ANALYZE AND KEEP RECORDS--The student will be able to:

08.01 Keep and maintain equipment service and maintenance records.
08.02 Keep personnel records.
08.03 Keep and maintain animal medical records.
08.04 Keep record of animal feeding and diet.
08.05 Maintain animal behavioral records.
08.06 Keep records of chemical, pesticide and medication use.

09.0 MANAGE ANIMAL, VISITOR AND WORKER SAFETY--The student will be able to:

09.01 Maintain the safety of animals.
09.02 Manage and maintain safety of visitors.
09.03 Handle animals in a safe and cautious manner.
09.04 Operate tools and equipment in a safe manner.
09.05 Prepare for emergencies.

10.0 IDENTIFY ANIMAL SPECIES--The student will be able to:

10.01 Classify animals according to habitat and nutritional requirements.
10.02 Recognize morphological characteristics of major animal groups.
10.03 Use taxonomical keys to identify animals to genus and species.
10.04 Identify species of animals in specific collections.

11.0 INTERPRET AND OBSERVE LAWS, RULES AND REGULATIONS RELATIVE TO OPERATION--The student will be able to:

11.01 Observe local, state, federal and international laws and regulations.
11.02 Maintain licenses, certificates, bonds and permits.
11.03 Interpret rules and regulations.
11.04 Identify agencies regulating the profession.

12.0 DISPENSE MEDICINE AND SUPPLIES--The student will be able to:

12.01 Follow verbal and written instructions when administering medications.
12.02 Interpret instructions and warnings on the labels of medicines and chemicals.
12.03 Maintain security of medicines and chemicals.
12.04 Identify medicines and chemicals commonly used in the profession.
12.05 Carefully mix, measure and dispense medications.
12.06 Maintain inventory of supplies and medications.

13.0 MANAGE, MAINTAIN AND REPAIR FACILITIES--The student will be able to:

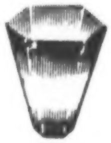
13.01 Maintain grounds, facilities and exhibits according to master plan.
13.02 Operate grounds keeping equipment.
13.03 Form and pour concrete.
13.04 Perform simple electrical repairs.
13.05 Perform simple plumbing repairs.
13.06 Paint wood, metal and masonry surfaces.
13.07 Perform repairs on wooden structures.
13.08 Observe safety precautions.

14.0 DEMONSTRATE LEADERSHIP, EMPLOYABILITY, COMMUNICATION, HUMAN AND PUBLIC RELATIONS SKILLS--The student will be able to:

14.01 Conduct a job search.
14.02 Secure information about a job.
14.03 Identify documents that may be required when applying for a job.
14.04 Complete a job application form correctly.
14.05 Demonstrate competence in job interview techniques.
14.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
14.07 Identify acceptable work habits.
14.08 Demonstrate knowledge of how to make job changes appropriately.
14.09 Demonstrate acceptable employee health habits.

15.0 OBSERVE AND INTERPRET ANIMAL BEHAVIOR--The student will be able to:

15.01 Recognize animal breeding behavior.
15.02 Provide appropriate breeding environment for animals.
15.03 Adjust animal diet during breeding season.
15.04 Manage the breeding of various species.
15.05 Identify behavior of animals following parturition.
15.06 Provide pre-natal and post-partum care for animals.
15.07 Observe and recognize abnormal animal behavior.



State of Florida
Department of Education
Betty Castor, Commissioner of Education
Tallahassee, Florida
Affirmative action/equal opportunity employer

Division of Vocational, Adult, and Community Education

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